FACT SHEET FOR NPDES PERMIT WA0023639
SALMON CREEK WASTEWATER TREATMENT PLANT
(A FACILITY OF CLARK COUNTY)
HAZEL DELL SEWER DISTRICT
AND
CITY OF BATTLE GROUND

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has authorized the state of Washington to administer the NPDES permit program. Chapter 90.48 Revised Code of Washington (RCW) defines the Department of Ecology's (Department) authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least 30 days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	Clark County Department of Public Works
Facility Name and Address	Salmon Creek Wastewater Treatment Plant 15100 Northwest McCann Road Vancouver, WA 98685
Type of Treatment:	Municipal Secondary, Activated Sludge with UV disinfection
Discharge Location	Columbia River between river miles 95 and 96 Latitude: 45º 43' 58" N Longitude: 122º 45' 23" W.
Water Body ID Number	Old ID No. WA-CR-1010 New ID No. 1220169456238

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

HISTORY

The Salmon Creek Wastewater Treatment Plant is owned and operated by Clark County's Department of Public Works which treats the wastewater from several outlying areas, which includes Hazel Dell Sewer District and the City of Battle Ground. The Hazel Dell Sewer District includes the communities of: Hazel Dell, Felida, Knapp, Cozy Camp, Lakeshore, Salmon Creek, and Pleasant Valley. Also included in the service area are: the Orchards, Walnut Grove, Five Corners, Meadow Glade, Hockinson, and Barberton. The community of Hazel Dell had an independent sewage treatment system (lagoon system) dating back to the late 1950s prior to hooking up to the Salmon Creek Treatment Facility. The City of Battle Ground also used a lagoon for sewage treatment which is now being used as an equalization basin and will be discussed below.

The Salmon Creek Treatment Facility (the plant) has gone through rapid growth and collection system expansion. The plant was constructed in 1973-1976 and had a design capacity of 2.0 mgd. In 1989 the plant was expanded to 3.1 mgd. In 1993 the plant expanded to 5.63 mgd. In 1995 the plant expanded to 7.4 mgd. Also in 1995 the solids handling system was enhanced and in 1996 sludge dewatering for biosolids was installed. In 1998 the plant expanded to 10.3 mgd, however, the flow increase was not recognized in the current permit. The existing permit issued in 1995 was never modified to increase the maximum monthly flow from 7.4 to 10.3 mgd. In the cycle of this new permit, the facility will start out at 10.3 mgd, but is slated to expand to a maximum monthly flow of 14.95 mgd in a phase 4 expansion, which is slated to be completed between 2008 and 2013.

COLLECTION SYSTEM STATUS

The Salmon Creek treatment plant receives waste water from two entities: Hazel Dell and Battle Ground. The Hazel Dell Sewer District is very large by most standards. There are 46 separate sub-basins within this collection system; five of these sub-basins flow to the City of Vancouver's Westside Treatment Plant and 41 sub-basins flow to the Clark County Salmon Creek Treatment Plant. The total area of the system is approximately 23,501 acres (37 sq. mi.) however; the area tributary to the Salmon Creek Plant is approximately 19,202 acres (30 sq. mi.). There are 51 existing pump stations and 650 STEP tanks within the Meadow Glade and Hockinson service area boundaries. There were 11 new pumps proposed as of 2001. There are approximately 425 miles of existing pipe in the district collection system consisting of 271 miles of gravity main lines from 6 to 24 inches, 122 miles of 4 to 6-inch service laterals, and 32 miles of pressure mains from 2 to 18 inches in size.

Feet of new pipe proposed for the Hazel Dell Sewer District through 2017:

10 in	12 in	15 in	18 in
9,628 feet	12,491 feet	2,526 feet	1,595 feet

Total pipe = 26,240 feet.

The 2001 Hazel Dell Comprehensive General Sewer Plan (GSP) lists the improvements necessary over the period from 2000 to 2017 and describes in detail which sections of the system will receive improvements and what those improvements are. The total cost of the improvements as of 2000 and

projected out through 2017 totaled $14,023,527 which includes the cost of new pump stations, pipelines and replacement manholes. A yearly I & I report and comprehensive I & I program, as stated at the end of the next paragraph, will be an important requirement of the new permit.

The City of Battle Ground is much smaller than Hazel Dell with a total service area of 4,814 acres (approx. 7.5 sq. mi.). There are 34 sub-basins located in the Battle Ground service area with an estimated 5,349 ERUs in as reported in 2004 (CH_2M Hill), the population estimate for 2003 is 13,039 within the city of Battle Ground. The system has 11 existing pump stations. The collection system has approximately 29 miles of sewer collection lines and mains and eight pump stations. A great deal of the older collection system, dating back to the late 1950s, was constructed of concrete or asbestos cement and has infiltration of water into the system. The clay-like soils of Battle Ground serves to exacerbate this situation. The Battle Ground GSP has stated that inflow is also a problem. Battle Ground completed an evaluation several years ago. That evaluation has triggered over $2 million in I&I rehabilitation projects with approximately $1.5 million spent in the last two years. The City also spends over $50,000 annually on sewer line replacement projects. This I&I work will need to continue. Both Battle Ground and Hazel Dell will be required to submit I&I reports in the new permit. The I&I language in the permit is the standard language for a municipality to continue to access I&I and correct problems that occur.

The 2000 Battle Ground GSP shows the thousands of feet of new and replacement pipes as follows:

Proposed sewer improvements for the Battle Ground Sewer District through 2010.

8-in	10-in	12-in	15-in	18-in
33,900ft	20,990 ft	11,400 ft	10,460 ft	10,100 ft

Total pipe = 86,850 feet.

The total cost of these Battle Ground improvements as of 2004 and projected out until 2010 is $17,361,000. This cost includes gravity sewer lines, pump stations, and force mains. There will be improvements to four of the eight existing pump stations.

The Battle Ground collection system uses an old eight acre lagoon that was once part of the Battle Ground treatment system. The lagoon is now used within the collection system as an equalization basin during the higher flows before waste water is sent to the Salmon Creek plant. There are, however, many areas in which this lagoon does not meet Ecology's criteria for use as an equalization basin. The lagoon is not lined with an impervious geotextile liner and has no screening, mixing, or aeration. The lagoon has no provisions for flow metering, screening, dewatering, or removal of floating material or scum. Upgrades to the lagoon which satisfy these criteria (as per the *Criteria for Sewage Works Design section T1-1.7.3)* will be required if the lagoon is to continue to be used. Otherwise the lagoon will need to be abandoned. An engineering plan for upgrading the lagoon or abandonment from the City of Battle Ground will be required by the new permit.

A hydrogeologic study of the area around the lagoon will be required. This evaluation will need to be followed by a ground water quality monitoring program including installation of monitoring wells and a regular sampling on a quarterly and annual basis.

TREATMENT PROCESSES

The Salmon Creek plant uses the activated sludge process with primary clarifiers, aeration basins, and secondary clarifiers (see the treatment plant schematic and site plan at the end of Appendix C). The flow

enters the plant where an automatic 24-hour sampling station and refrigeration unit is located. The influent flow is measured with a magnetic meter.

The influent is screened to 6 mm particle size at two filter-belt type of screens that are oriented vertically. The influent then flows through two circular vortex grit chambers that are 20-feet in diameter. The screenings are sent to a compactor and sent to the local transfer station for landfill disposal. The influent then is split to flow into three separate primary clarifiers that help reduce TSS and BOD by removing floating scum and begin settling.

The primary effluent then flows to the selectors and aeration basins. The flow first enters a primary effluent/RAS mixing box where return activated sludge is added to the primary effluent. The flow is then split to enter one of two types of aeration basin. Aeration basin No. 5 has a flow of mixed liquor that is followed directly by the secondary clarifiers. Aeration basins No. 1 and 2, however, work in series with basins No. 3 and 4. All of the aeration basins can provide anaerobic/anoxic and aerobic zones through selector boxes at the beginning of the basins and partitioning of aerated zones.

There are three secondary clarifiers that have settled solids pumped either back to the mixing box as RAS or wasted to the sludge/biosolids processing train. After the clarifiers the flow is disinfected by an array of Ultra-Violet (UV) lamps. There are two separate UV arrays that under normal flow conditions are used one at a time with the second array reserved as backup. Both arrays, however, may be used during higher flows. There are 42 UV bulbs in each array. Each array is equipped with an auto cleaning/wiping system that uses a gel lime-removal product. There is a sampling station located above the effluent channel downstream of the UV array. The automatic sampler is located in a refrigerator. The sludge processing train will be discussed below.

There are nine staff working at the plant that have operator certification with the state of Washington. There is two staff with Group IV certification; four Group III; two Group II; and one Group I operator. The hours of operation are 7:00 a.m. to 3:30 p.m. These hours are kept 365 days per year and there are six individuals on a call list for after hours emergencies.

The permit deals with three separate entities: Hazel Dell Sewer District, City of Battle Ground, and the Salmon Creek Wastewater Treatment Plant which is part of the Clark County Public Works. Each of these entities must work cooperatively to assure that wastewater that reaches the treatment plant has been pretreated by commercial businesses and industry. The pretreatment which will be discussed in detail below assures that the volume and quality of the influent to the plant are such that the plant can further treat the wastewater. The service area has several industries and commercial businesses. The permit will require a pretreatment program and industrial user survey. This program is discussed later in the permit.

There are only four significant industrial users that discharge from the Hazel Dell District to the Salmon Creek Plant: Shell Solar, Implanted Material Tech. (IMAT) Pro-Tech Inc., and nLight Photonics Corp. All four industries have State Waste Discharge Permits. the combined Hazel Dell district and city collection system also includes:

- 3 moderate users,
- Approximately 132 food and beverage estabilishments in the fats, oils, and grease program,
- Approximately 30 medical/dental facilities, and
- miscellaneous businesses which have been eliminated from consideration as industrial pretreatment contributors because their wastewater is domestic in nature.

These other contributors to the Hazel Dell system have been eliminated from consideration as industrial pretreatment contributors because the wastewater is domestic in nature. The Hazel Dell Sewer District is under contract with Clark County Public Works to provide industrial pretreatment services for all flows entering the Salmon Creek Wastewater Treatment Plant; this includes the city of Battle Ground. The city of Battle Ground has not had to submit a pretreatment report or an industrial user survey since 1995. However, the Hazel Dell sewer district has been contracted to do some pretreatment work for Battleground. The new permit will require Battle Ground to have a survey conducted of non-domestic sources of wastewater. This survey of Battle Ground may be conducted by the Hazel Dell Sewer District. More information on the pretreatment requirements may be found in the pretreatment sections of this fact sheet and the permit.

In the cycle of this new permit, the Salmon Creek Plant will begin the phase 4 upgrade. The plant capacity will go from the current capacity of 10.3 mgd to 14.95 mgd for the maximum monthly flow. Part of the expansion will be covered by the existing regional facilities charge imposed by Clark County and collected by the Hazel Dell Sewer District. The Hazel Dell Sewer District and the city of Battle Ground have each obtained a Public Works Trust Fund (PWTF) loan of $11 million to be applied to the phase 4 expansion program costs. The PWTF loan is typically a low interest (1/2 percent) and requires a 15 percent spending match that will be satisfied by County fund balances, past and present, and additional coverage-driven capital funding spent on behalf of the wholesale customers. The phase 4 costs not funded by the PWTF loans will need to be made up by revenue bonds issued by the County and secured by the Hazel Dell Sewer District. The revenue bond interest rate is assumed to be 6 percent, with 2 percent insurance costs. The costs of the former phase 1-3 expansions will continue through 2013 to 2016. The phase 4 expansion program estimated project costs total $60,000,000. Of this total, $10,000,000 will be allocated to gravity interceptor upgrades, $13,500,00 to pump station construction and upgrades, $20,000,000 to force main construction, and $16,500,000 to treatment plant improvements. Future rate increases will also be used to fund the program. These estimated costs may be found in Chapter 6 of the 2004 Salmon Creek Wastewater Facility Plan/General Sewer Plan Phase 4 Expansion.

DISCHARGE OUTFALL

The secondary treated effluent leaving the Salmon Creek Plant currently travels in a 30-inch concrete pipeline approximately 7,462 feet to the Columbia River. The outfall consists of a pipe that is buried and extends 300 feet from the east bank and terminates with a 50-foot diffuser. The diffuser has five risers on ten-foot spacing. Each riser is ten-inches in diameter and is capped with a turret with three ports that are 120 degrees apart. One of the ports on each riser faces down stream and the other two facing 60 degrees away from either side of the upstream direction. Each port is a five by five-inch square. The depth of water over the ports is 20 feet at low river stage. But water depths can range from 17 feet at critical 7Q10 low flow to 28 feet at 7Q10 high river flood stage flow.

An outfall dilution study report was filed January 2004 with an addendum filed in May of 2004 (CH2MHILL, 2004 January; May). There were extensive dye studies conducted where the dilution was modeled and models calibrated to the dye study results. The results are shown later in this fact sheet.

A second outfall is proposed for future expansion of the Salmon Creek Plant for Phase 5. This expansion would take place between 2013 and 2018 which is beyond the scope of the new permit. This future expansion is intended to provide additional conveyance capacity and to improve dilution that will be needed with the increase in capacity at the plant. The 2004 GSP recommendation is to build an entirely new outfall with a 48-inch pipe with 14 10-inch ports at 12-foot spacing rather than have two outfalls which is an option.

RESIDUAL SOLIDS

The Salmon Creek Plant has an extensive biosolids handling system where sludge is thickened, blended, digested anaerobically, dewatered and the biosolids are stored, hauled away, and land applied. The process is described below.

The waste activated sludge from the secondary clarifiers is sent to a thickener where polymer is added. Scum from the primary clarifiers is concentrated. The thickened waste activated sludge is sent to a tank where solids are blended and then sent to the anaerobic digester along with the concentrated scum. Any waste gas generated in the anaerobic process is incinerated. The effluent from the anaerobic digester is sent to a filter belt press for dewatering. Polymers may be added to aid in the thickening. The final Class B biosolids has approximately 15 percent solids and is stored on-site under cover until hauled off to be land applied at two sites near Woodland, Washington. Future contracts may be established with long-haul application contractors.

The Salmon Creek Plant receives biosolids from the Ridgefield Treatment Plant and other treatment plants. The outside biosolids are received just prior to the solids thickening treatment at Salmon Creek.

PERMIT STATUS

The previous permit for this facility was issued on December 12, 1995, and expired on December 12, 2000. The permit has remained in-effect without changes since that time. The previous permit placed effluent limitations on 5-day Biochemical Oxygen Demand (BOD_5), Total Suspended Solids (TSS), pH, and Fecal Coliform bacteria.

An application for permit renewal was submitted to the Department on June 30, 2000.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its last inspection on June 16, 2004. The facility was found to be working satisfactorily during that time.

During the history of the previous permit, the Permittee has remained in compliance, based on Discharge Monitoring Reports (DMRs) submitted to the Department and inspections conducted by the Department.

WASTEWATER CHARACTERIZATION

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The effluent is characterized as follows:

Table 1: Wastewater Characterization Salmon Creek DMR reporting (June 2001-May 2004)

Effluent Parameter (except for flow)	Value or Concentration	Current Permit Limits
Flow	6.2 mgd (avg of monthly avgs) 7.3 mgd (avg of monthly max) 11.49 mgd (daily max, Jan 2003)	7.4 mgd (avg of max month) (Plant upgraded in 1998 to 10.3 mgd max month and 13.1 mgd max daily))
pH	6.78 minimum reported	Shall not be outside of the range of 6.0 to 9.0

Effluent Parameter (except for flow)	Value or Concentration	Current Permit Limits
	7.71 maximum reported	
BOD_5	8.5 mg/L (avg of monthly avgs) 10.1 mg/L (avg of weekly avgs) 92% removal (5^{th} percentile of avgs) 705 lbs/d (avg of weekly avgs)	30 mg/L monthly 45 mg/L weekly 85% removal rate 2610 lbs/day weekly
TSS	11 mg/L (avg of monthly avgs) 14.9 mg/L (avg of weekly avgs) 93% removal (5^{th} percentile of avgs) 704 lbs/d (avg of weekly avgs)	30 mg/L monthly 45 mg/L weekly 85% removal rate 2610 lbs/day weekly
Fecal Coliform	19/100ml (avg of monthly geomeans) 42/100ml (avg of weekly geomeans)	200/100 ml 400/100 ml
DO	6.1 mg/L (min discharged)	Not limited, but important in water quality assessment
Ammonia	31.47 mg/L (95^{th} percentile*) Year round 32.54 mg/L (95^{th} percentile*) Winter 31.74 mg/L (95^{th} percentile*) Summer	Not limited, but important in water quality assessment

*Ammonia was sampled several times per month from January 2003 through May 2004 and reported on DMRs. The percentile was taken from that period. Before January 2003, ammonia was not regularly reported in the state-required DMR and only monthly averages were reported on the EPA report form. A combined ammonia data set made up of mostly daily ammonia values (114 samples) and average values (19 data points from before Jan 2003), has a 95^{th} percentile of 32.34 mg/L.

The flow shown in the table above has been high, but has not exceeded the design criteria. Clark County has clearly been planning to upgrade the plant with the 2004 GSP and Facility Plan. The plant flow capacity will be upgraded during the next permit cycle. The pH, BOD, TSS, and Fecal Coliform have all been kept well within the permit limits. The Dissolved Oxygen (DO) is reasonable and above what is typically seen in sewage treatment plant effluent. The ammonia is rather high for a facility that has the ability to remove ammonia through nitrification/de-nitrification, which Salmon Creek was designed to do during summer months at the current Phase III construction. The Department's assessment of the Salmon Creek Wastewater Treatment Plant under phase III & phase IV shows that the facility should be able to remove enough ammonia in order to meet limits under the accompanying permit. More will be discussed about these items below under Considerations for Water Quality Limits and Toxic Pollutants below.

Several metals were sampled and reported on the EPA report form. The results from this sampling are shown below.

Metals Effluent Sampling (20 samples from May 1999 to April 2004). Metals are Total Recoverable

Parameter	Results
Arsenic (As)	3.2 µg/L (95th percentile)
Zinc (Zn)	51.45 µg/L (95th percentile)
Cadmium (Cd)	All samples below detection of 1 µg/L
Copper (Cu)	29.40 µg/L (95th percentile)
Lead (Pb)	All samples below detection of 1 µg/L
Mercury (Hg)	All samples below detection of 0.2 µg/L
Nickel (Ni)	4.40 µg/L (95th percentile)
Selenium (Se)	3.8 µg/L (95th percentile)
Silver (Ag)	1.08 µg/L (95th percentile)

Most of the parameters had sample values that were below the detection level. The 95th percentiles were calculated using the detection values as they occurred. This serves as a worst case scenario for determining the reasonable potential to pollute which will be done later in this fact sheet.

SEPA COMPLIANCE

Clark County conducted an Environment Impact Statement for Phase III expansion, Phase IV, and ultimate build out. The final EIS was issued in October 1995. The document provides a detailed analysis of the proposed action and the licenses and permits that are required. The phase III improvements have been completed but much of the future work described in the final EIS has yet to take place. Additionally, SEPA and SERP review for the phase IV improvements has been completed.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not

authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria.

The design criteria for this treatment facility are taken from the 2004 GSP/Facility Plan prepared by CH2MHILL and are as follows:

Table 2: Design Standards for the Salmon Creek WWTP.

Parameter	Existing 1995 Permit	Present Design Quantity*	Future Design Quantity to be Completed Between 2008 and 2013
Monthly average flow (max. month)	7.4 MGD	10.3 MGD	14.95 MGD
Instantaneous peak flow (hour		21.6 MGD	28.32 MGD
BOD_5 influent loading (max month)	11,600 lbs/day	15,700 lbs/day (max month)	20,900 lbs/day
TSS influent loading (max month)	11,600 lbs/day	16,700 lbs/day (max month)	28,200 lbs/day

*The existing permit has a design flow of 7.4 mgd and both BOD and TSS were at 11,600 lbs/day. The plant was upgraded in 1998 to the present Phase III design quantities shown above, but the permit was never updated to reflect the increased capacity (CH2MHill, 1995; CH2MHill 2004).

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

Table 3: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 ml Weekly Geometric Mean = 400 organisms/100 ml

Parameter	Limit
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

The following technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Mass Limits Under Phase III (Existing)

Monthly BOD effluent mass loadings (lbs/day) was calculated as the maximum monthly influent design loading (15,700 lbs/day) x 0.15 = 2,355 lbs/day.

The BOD weekly average effluent mass loading is calculated as 1.5 x monthly loading = 3,533 lbs/day.

Monthly TSS effluent mass loadings (lbs/day) was calculated as the maximum monthly influent design loading (16,700 lbs/day) x 0.15 = 2,505 lbs/day.

The TSS weekly average effluent mass loading is calculated as 1.5 x monthly loading = 3,758 lbs/day.

Mass Limits Under Phase IV (Future)

Monthly BOD effluent mass loadings (lbs/day) was calculated as the maximum monthly influent design loading (20,900 lbs/day) x 0.15 = 3,135 lbs/day.

The BOD weekly average effluent mass loading is calculated as 1.5 x monthly loading = 4,703 lbs/day.

Monthly TSS effluent mass loadings (lbs/day) was calculated as the maximum monthly design flow (14.95 MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit 3,741 lbs/day. The Department policy based on federal rules is to use the more stringent of the two methods for monthly mass loadings for technology-based limits. This limit calculation uses the different method which produced the lower limit.

The TSS weekly average effluent mass loading is calculated as 1.5 x monthly loading = 5,612 lbs/day.

The following tables summarize the loading calculations from above:

Phase III Allowable Loadings

	Monthly Loadings	Weekly Loadings
BOD	2,355	3,533
TSS	2,505	3,758

Phase IV Allowable Loadings

	Monthly Loadings	Weekly Loadings
BOD	3,135	4,703
TSS	3,741	5,612
Ammonia[a]	To Be Determined	To Be Determined

[a]Because of the requirement to nitrify ammonia, the Permittee will need to determine ammonia loading capacity within the framework of the limits imposed in this permit. This will be integrated into future permits.

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of the surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide total maximum daily loading study (TMDL).

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when receiving waters are of higher quality than the criteria assigned,

the existing water quality shall be protected. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and is unable to determine if ambient water quality is either higher or lower than the designated classification criteria given in Chapter 173-201A WAC; therefore, the Department will use the designated classification criteria for this water body in the proposed permit. The discharges authorized by this proposed permit should not cause a loss of beneficial uses.

The natural condition of the water cannot be easily discerned from the conditions in the ambient environment as they exist today.

There are several parameters listed on the 303(d) list of limited water bodies in this segment of the Columbia River. The 1998 303(d) listing of WRIA 28 has listings for Arsenic, fecal coliform, sediment bioassay, temperature, and total dissolved gas.

A temperature TMDL is in progress for the Snake and Columbia Rivers. Diminishing riparian vegetation, increased thermal absorption due to dams (with shallower backwaters), return flows from irrigation, and increased numbers of thermal discharges have all had significant effects on the Columbia River temperature as a whole. This is measurable in all areas of the river including the area of the Salmon Creek outfall. More will be discussed under Considerations for Surface Waters below.

The total dissolved gas is almost entirely a product of excess water spilled at the upstream hydropower facilities and is not a product of wastewater facilities.

The sediment bioassay does not appear to be related to the discharge from the municipal sewage treatment plant.

The Arsenic was listed in the 1998 303(d) list but has since been retested and meets standards.

Fecal Coliform showed up on the 1998 303(d) list but did not show up on subsequent testing and will not be on the 2002 list or the proposed 2004 list. The Salmon Creek facility is equipped with UV disinfection which can easily meet the technology and water quality limits.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria. More information on mixing zones and dilution are discussed below.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to The Columbia River which is designated as a Class A receiving water in the vicinity of the outfall. There are no major outfalls within one mile of the Salmon Creek outfall. Significant nearby non-point sources of pollutants include Stormwater from the urban area and unidentified livestock and logging activity in the rural areas tributary to the Columbia River.

Characteristic uses of Class A water include the following: water supply (domestic, industrial, agricultural); stock watering; fish migration; fish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation.

Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

Fecal Coliforms	100 organisms/100 ml maximum geometric mean
Dissolved Oxygen	90% saturation minimum
Temperature	Special condition: 20 degrees Celsius maximum or incremental increases above background not greater than 0.3 degrees Celsius
pH	6.5 to 8.5 standard units
Turbidity	less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WATER QUALITY-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

Because of the tidal reversal, the boundary of the mixing zone is a maximum of: 217 feet upstream and down stream. The boundary of the acute mixing zone is 21.7 feet upstream and down stream.

The dilution factors of effluent to receiving water that occur within these zones have been determined at the critical condition by the use of UM3 dilution model which was calibrated with a series of dye studies and documented in and outfall dilution report and addendum (CH2MHILL, 2004 January; May) The dilution factors for Aquatic Life have been determined to be:

	Acute	Chronic
Phase III	19:1	67:1
Phase IV	18:1	65:1

The dilution study was not conducted in such a manner so as to produce seasonal limits. The factors were determined using annual high and low flows. As such, only the acute and chronic dilution factors for each phase of development (as shown above) were generated by the study.

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Columbia River is the seven day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the Salmon Creek outfall was taken from several reports. The flow, velocity and physical river data were taken from the 2004 Outfall Dilution Study Report (CH2MHILL, 2004 January; May). The temperature was taken from the USGS/ACOE web pages for the Columbia River dissolved gas network http://or.water.usgs.gov/cgi-bin/grapher. The summer temperatures were taken from the Camas/Washougal station which had hourly data from May through late September. The maximum daily values were used to establish a 90th percentile. The winter temperatures were taken from the Warrendale station which is the nearest station with winter data. The pH percentiles were determined by combining two sets of data. The Department data set had only monthly pH sampling during two years. In 2002-2003 the Department sampled pH and a number of other parameters used in this report at station 28A100 which is near Vancouver, Washington on the Columbia. In 1994 the USGS sampled pH. Because both of the pH data sets were minimal, these two data sources were combined. The other conventional parameters and metals come from the 2002-2003 Ecology sampling at station 28A100, which may be found at:
http://www.ecy.wa.gov/apps/watersheds/riv/station.
The ambient background data used for this permit includes the following:

Parameter	**Value used**		
	Low	Med	High
Flow	85,346 cfs (7Q10)		574,471 cfs (7Q90)
Velocity	30.0 cm/sec downstream 108 cm/sec upstream	12.5 cm/sec downstream 5.1 cm/sec upstream	33.6 cm/sec downstream 15.0 cm/sec upstream
Depth	21 ft	26.6 ft	40.9 ft
Temperature	21.48ºC (summer 90th percentile based on 453 points) 15.13ºC (winter 90th based on 728 points)		
pH (high)	8.46 S.U. (winter 90th percentile based on 15 data points)		

	7.988 S.U. (summer 90th percentile based on 8 data points)
Dissolved Oxygen	8.9 mg/L (10th percentile)
Total Ammonia-N	21 µg/L (summer geomean x 1.74, approximates 90th percentile for small pop.) 19 µg/L (winter geomean x 1.74, approx. 90th percentile)
Fecal Coliform	11.5 org/100 ml (geomean x 1.74, approx. 90th percentile)
Hardness	48.78 mg/L as CaCO3 (10th percentile)
Arsenic	1.74 µg/L (geomean x 1.74, approx. = 90th percentile, dissolved)
Cadmium	All non detect less than 1.74 µg/L
Copper	1.29 µg/L (geomean x 1.74, approx. = 90th percentile, dissolved)
Lead	0.063 µg/L (geomean x 1.74, approx. = 90th percentile, dissolved)
Nickel	0.842 µg/L (geomean x 1.74, approx. = 90th percentile, dissolved)
Silver	Al non detect less than 0.1 µg/L
Zinc	2.55 µg/L (geomean x 1.74, approx. = 90th percentile, dissolved)
All Other Metals	Assumed 0.0 or below detection limits

BOD_5--This discharge with technology-based limitations results in a small amount of BOD loading relative to the large amount of dilution occurring in the receiving water at critical conditions. Technology-based limitations will be protective of dissolved oxygen criteria in the receiving water. The facility also does a good job producing effluent with dissolved oxygen no lower than 6.1 mg/L. The dissolved oxygen of the Columbia has been well saturated with a 10th percentile of 8.9 mg/L. A simple mixing of dissolved oxygen is shown in Appendix C.

Temperature-- The impact of the discharge on the temperature of the receiving water was modeled by simple mixing analysis at critical condition. The receiving water temperature at the critical condition is 21.48ºC and the effluent temperature is 23.0ºC (from dilution study modeling). The predicted resultant temperature at the boundary of the chronic mixing zone is 21.50ºC and the incremental rise is 0.02ºC. The ambient temperature represents the 90th percentile of 453 daily maximums from June-September of 2001-2003 at the USGS monitoring station at Warrendale. The effluent temperature has not been reported in the DMRs and the value was taken from the dilution modeling.

Because the increase is small compared to the 0.3ºC normally allowed under the standards, because a TMDL is in progress which will allot loading to different sources, the Permittee will not be required to limit temperature at this time. However, the Permittee will be required to continue to monitor effluent temperature for daily maximum. The Salmon Creek facility is not a significant source of thermal pollution. Nonetheless, temperatures in the lower Columbia consistently exceeded the standard in July and August. The USGS study found the Willamette River was the warmest tributary to the Columbia (up to 24.2ºC).

A preliminary draft temperature TMDL was proposed for the Snake and Columbia Rivers, but has not been completed or continued at this time. Diminishing riparian vegetation, increased thermal absorption due to dams (with shallower backwaters), return flows from irrigation, and increased numbers of thermal discharges have all had significant effects on the Columbia River temperature as a whole. This is measurable in all areas of the river including the area of the Salmon Creek outfall. According to the USGS data, the long term trend in the Columbia River temperature has been increasing at 0.073ºC per

year, and in the Willamette it has been increasing 0.14ºC per year. It is possible under the final temperature TMDL that the Salmon Creek facility will be required to reduce the effluent effects in order to meet the water quality criteria during the critical season.

pH--The impact of pH with temperature was modeled using the calculations from EPA, 1988. The input variables were dilution factor 65, upstream temperature 21.48ºC, upstream pH 8.46, upstream alkalinity 53(as mg $CaCO_3$/L), effluent temperature 23ºC, effluent pH of 7.71, and effluent alkalinity 150 (as mg $CaCO_3$/L).

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters. Therefore, the technology-based effluent limitations for pH was placed in the permit. Because the ambient pH based on limited information appears to be high, the toxicity calculations for ammonia are triggered in the reasonable potential calculations.

Fecal coliform--The numbers of fecal coliform were modeled by simple mixing analysis using the technology-based limit of 400 organisms per 100 ml and a dilution factor of 65.

Under critical conditions there is no predicted violation of the Water Quality Standards for Surface Waters with the technology-based limit. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the proposed permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards for Surface Waters or from having surface water quality-based effluent limits.

The following toxics were determined to be present in the discharge: ammonia, and heavy metals. A reasonable potential analysis (See Appendix C) was conducted on these parameters to determine whether or not effluent limitations would be required in this permit. An analysis was done for both Phase III and Phase IV in the reasonable potential. The difference in the reasonable potential is that the Phase IV dilution is slightly lower.

Under the Phase III there is no reasonable potential for any of the toxics to violate the standards. However, under Phase IV there is a reasonable potential for winter ammonia to violate the criterion. This determination of the reasonable potential for ammonia was evaluated with procedures given in EPA, 1991. The critical condition in this case occurs during the winter when the pH appears to be high (8.46) which drives down the ammonia criteria as shown in Appendix C. The parameters used in the critical condition modeling for Phase IV are as follows: acute dilution factor 18:1, chronic dilution factor 65:1, receiving water temperature 15.1ºC, and background ammonia of 0.019 mg/L. The effluent ammonia however was high at 32.54 mg/l which will result in an exceedance of the criterion at the chronic mixing zone boundary. A slight reduction of effluent ammonia through nitrification/denitrificaion will allow the facility to meet the criterion. An ammonia limit will be required.

Valid ambient background data was available for silver, arsenic, cadmium, copper, nickel, mercury, zinc, and lead. Calculations using all applicable data resulted in a determination that there is no reasonable potential for this discharge to cause a violation of water quality standards for these metals. This determination assumes that the Permittee meets the other effluent limits of this permit.

Effluent limits were derived for ammonia, which were determined to have a reasonable potential to cause a violation of the Water Quality Standards. Effluent limits were calculated using methods from EPA, 1991 as shown in Appendix C.

The resultant effluent limits are as follows:

> An average monthly ammonia limit will be 18.68 mg/L and a maximum daily limit will be 37.48 mg/L.

The Salmon Creek Facility has some ability to nitrify/denitrify the wastewater to remove ammonia and therefore should not have difficulty meeting these limits.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sub lethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Department Publications Distribution Center (360) 407-7472 for a copy. The Department recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

During the previous permit, toxicity tests were performed in the last couple of years from 2001 through 2004 and in 1996 and 1997. The first series of tests in 1996 found acute toxicity and recommended acute and chronic limits. Subsequent testing in 1997 found no toxicity and no limits were imposed. However, the recent testing in the last couple of years has again indicated toxicity. The Salmon Creek facility is large and there are several industrial discharges to the facility. Ammonia is a likely culprit, but may not be the only cause. This is indicated by the drop in daphnid survival which is usually not affected by ammonia at the levels seen during testing. Ammonia discharges at the facility have been high. In the last three years the ammonia has been above 32 mg/L five percent of the time. The following table shows percent survival in acute WET tests during the last couple of years and effluent ammonia at that time.

Salmon Creek Ammonia and Acute WET as % Survival in 100% Effluent

sample date	ammonia (mg/L)	daphnid % survival	fathead minnow % survival
12/13/04	5.7	100%	87%
9/20/04	5.1	100%	25%
11/17/03	18.2	100%	5%
9/8/03	22.4	80%	0% 30% effluent had significant deaths
12/2/02	23.5	90%	0%
6/24/02	24.7	0%	0%
12/10/01	19	90%	20%
6/11/01	11.3	100%	82.50%

Acute toxicity was measured during effluent characterization in the previous permit term. Acute toxicity was found to be at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity. An acute toxicity limit is therefore required. The acute toxicity limit is "no statistically significant difference in test organism survival between the acute critical effluent concentration (ACEC), 5.6 percent of the effluent, and the control."

The acute toxicity limit is set relative to the zone of acute criteria exceedance (acute mixing zone) established in accordance with WAC 173-201A-100. The acute critical effluent concentration is the concentration of effluent existing at the boundary of the acute mixing zone during critical conditions.

Monitoring for compliance with an acute toxicity limit is accomplished by conducting an acute toxicity test using a sample of effluent diluted to 5.6 percent and comparing test organism survival in the 5.6 percent effluent to survival in nontoxic control water. The Permittee is in compliance with the acute toxicity limit if there is no statistically significant difference in test organism survival between the 5.6 percent effluent and the control.

Chronic toxicity was also measured during effluent characterization in the previous permit term. However, the chronic toxicity was not at levels of regulatory concern. With chronic dilution at less than 10 percent of effluent there will be no chronic WET limit.

The WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water *chronic* toxicity, and the Permittee will not be given a *chronic* WET limit and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that chronic toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard".

The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

HUMAN HEALTH

Washington's water quality standards now include 91 numeric health-based criteria that must be considered in NPDES permits. These criteria were promulgated for the state by the U.S. EPA in its National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992).

The City of Battle Ground has a clay lined lagoon that is used as an equalization basin. Because of the potential for ground water contamination, there will need to be an evaluation of the ground water hydrogeology and install a ground water monitoring system of wells. This is the Department policy when the storage medium has only a single layer of impervious membrane or, as in this case, a clay liner with no impervious membrane. Once the wells have been installed, the following parameters will need to be monitored on a regular basis as shown below.

The Permittee shall monitor the ground water according to the following schedule:

Parameter	Units	Sampling Frequency[a]	Sample Type
pH	Standard Units	Quarterly	Field Test
Dissolved Oxygen	mg/L	Quarterly	Field Test
Temperature	ºC	Quarterly	Field Test
Water Level	Feet	Quarterly	Field Test
Iron (ferrous, Fe+2)	mg/L or +/-	Quarterly	Field Test
Conductivity	micromhos/cm	Quarterly	Field Test
Total Coliform	CFU/100mL	Quarterly	Grab
Chloride	mg/L	Quarterly	Grab
Total Dissolved Solids	mg/L	Quarterly	Grab
NH3-N (Ammonia as N)	mg/L	Quarterly	Grab
NO2-N (as N)	mg/L	Quarterly	Grab
NO3 (as N)	mg/L	Quarterly	Grab
TKN (as N)	mg/L	Quarterly	Grab
Iron (total)	mg/L	Quarterly	Grab
Manganese (total)	mg/L	Quarterly	Grab
Calcium	mg/L	Annually	Grab
Magnesium	mg/L	Annually	Grab
Potassium	mg/L	Annually	Grab
Sodium	mg/L	Annually	Grab
Bicarbonate	mg/L	Annually	Grab
Carbonate	mg/L	Annually	Grab
Silica	mg/L	Annually	Grab
Sulfate	mg/L	Annually	Grab

[a] Quarterly sampling is defined as:
1st Quarter – January 1st – March 31st (report on March DMR)
2nd Quarter – April 1st – June 30th (reports on June DMR)
3rd Quarter – July 1st – September 30th (report on September DMR)
4th Quarter – October 1st through December 31st (report on December DMR)
Annual sampling is defined at January 1st through December 31st (report on

Parameter	Units	Sampling Frequency[a]	Sample Type
January DMR)			

Three monitoring wells will need to be installed. The locations of these monitoring wells will need to be determined by a study. (See Permit condition S11.) When double-lined or concrete containment is provided, continued monitoring could be discontinued so long as sampling to date does not provide evidence of groundwater contamination. The Permittee would need to request that change.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has been unable to determine at this time the potential for this discharge to cause a violation of sediment quality standards. If the Department determines in the future that there is a potential for violation of the Sediment Quality Standards, an order will be issued to require the Permittee to demonstrate that either the point of discharge is not an area of deposition or, if the point of discharge is a depositional area, that there is not an accumulation of toxics in the sediments.

GROUND WATER QUALITY LIMITATIONS

The Department has promulgated Ground Water Quality Standards (Chapter 173-200 WAC) to protect uses of ground water. Permits issued by the Department shall be conditioned in such a manner so as not to allow violations of those standards (WAC 173-200-100).

This Permittee has no discharge to ground and therefore no limitations are required based on potential effects to ground water.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Continued monitoring for ammonia and metals is being required to further characterize the effluent with the possible toxicity problems and the continued expansion of the plant.

At present, there are no permit limits that are below quantification or below detection. However, at the Permittee's request, the Department has included the following two paragraphs that provide guidance for when there are limits below quantification or detection.

EFFLUENT LIMITS BELOW QUANTIFICATION

The following language is in the event there are water quality-based effluent limits in the wastewater that are below the capability of current analytical technology to quantify: The Quantification Level is the level at which concentrations can be reliably reported with a specified level of error. For maximum daily effluent limits, if the measured effluent concentration is below the Quantification Level, the Permittee Reports NQ for non-quantifiable. For average monthly effluent limits, all effluent concentrations below the Quantification Level but above the Method Detection Level are used as reported for calculating the average monthly value.

EFFLUENT LIMITS BELOW DETECTION

The following language is in the event that are water quality-based effluent limits in the wastewater that are below the capability of current analytical technology to detect. The Method Detection Level (MDL) is the minimum concentration of an analyte that can be measured and reported with a 99 percent confidence that its concentration is greater than zero as determined by a specific laboratory method. For maximum daily limits, if the concentrations are below the MDL, the Permittee reports ND for non-detectable. For average monthly limits, all values above the MDL are used as reported and all values below the MDL are calculated as zero.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management programs and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual* (July 1994) for an activated sludge facility with a design flow of greater than 5.0 mgd.

Under pretreatment requirements, the Salmon Creek Wastewater facility is required to have influent, primary clarifier effluent, final effluent, and sludge sampled for toxic pollutants in order to characterize the industrial input. Sampling is also done to determine if pollutants interfere with the treatment process or pass through the plant to the sludge or the receiving water. The monitoring data will be used by the Department to develop local limits which commercial and industrial users must meet. The Hazel Dell Sewer District and the City of Battle Ground will be required to submit industrial user surveys and submit pretreatment reports.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.* The laboratory at this facility is accredited for: General Chemistry which includes Ammonia, BOD, CBOD, DO, pH, Solids Total Suspended, and Microbiology which includes Fecal Coliform.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 require the Permittee to take the actions detailed in proposed permit requirement S.4 to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Condition S.4 restricts the amount of flow and conventional pollutants (BOD and TSS).

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. A separate O&M manual will be required of the Hazel Dell Sewer District and the City of Battle Ground as well as updates to the Salmon Creek O&M Manual after phase IV upgrades.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503, and by the Department under Chapter 70.95J RCW and Chapter 173-308 WAC. The disposal of other solid waste is under the jurisdiction of the Clark County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are not included in this permit. But are included in the Statewide General Permit for Biosolids Management. This information will by used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

Clark County, the Hazel Dell Sewer District, and the City of Battle Ground and the jurisdictions (referred to here as the Permittee) which discharge to the Salmon Creek facility, have not been delegated the authority to issue permits to nondomestic or industrial dischargers. The Permittee, therefore, must support the Department's effort to permit industrial users with a system to identify new and existing industrial users that undergo changes.

Significant pretreatment requirements in the proposed permit's condition in S6 reflect the Department's reliance on the Permittee to accomplish several critical components of the pretreatment program.

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e. act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]**.** Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g. tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)] (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. The POTW should encourage such dischargers to contact the Department to determine if a permit is required.). Industrial dischargers need to apply for a State Waste Discharge Permit 60 days prior to commencing discharge. Sewer service providers must ensure that permits, where needed, are obtained prior to providing sewer service to industrial users of the sewer. The Department requires this POTW, including Battle Ground and Hazel Dell, to work cooperatively in order to support the above requirements, and also to fulfill some of the functions required for the Pretreatment Program (e.g. tracking the number and general nature of industrial dischargers to the sewage system). The POTWs NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. If they do not already possess a permit for discharge to the sewer, the Permittee should follow the Department's guidance on the performance of an Industrial User Survey to provide a complete and valuable report.

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Performing an Industrial User Survey

This POTW has the potential to serve significant industrial or commercial users; therefore, Battle Ground is required to perform an Industrial User Survey. Hazel Dell has already done so through the existing pretreatment report and will need to continue to do so with an updated report and updated domestic inventory. The goal of this survey is to develop a list of SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of state waste discharge permits or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent the exceedance of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department guidance document entitled "Conducting an Industrial User Survey."

In addition to periodic focused efforts to uncover non-domestic discharges to the POTW, a continuous process of reviewing plans and data is also required.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to " take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." The sewer system in this case is the Hazel Dell and Battle Ground collection systems and any other sewer system extensions. Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in

writing, of their responsibilities regarding application for a State Waste Discharge Permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a State Waste Discharge Permit application.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet.

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

OUTFALL EVALUATION

Proposed permit Condition S.13 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

CH2MHILL

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1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

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Tsivoglou, E.C., and J.R. Wallace.

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Permit and Wastewater Related Information
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Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on May 16, 2004, and May 23, 2004, in the *Columbian* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on February 18, 2005, in the *Columbian* to inform the public that a draft permit and fact sheet were available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Carey Cholski
Department of Ecology
Southwest Regional Office
Water Quality Program
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6554, or by writing to the address listed above.

This permit and fact sheet were written by Eric Schlorff.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment".

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

CBOD5 – The quantity of oxygen utilized by a mixed population of microorganisms acting on the nutrients in the sample in an aerobic oxidation for five days at a controlled temperature of 20 degrees Celsius, with an inhibitory agent added to prevent the oxidation of nitrogen compounds. The method for determining CBOD5 is given in 40 CFR Part 136.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots).

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

Pass through -- A discharge which exits the POTW into waters of the-State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 % of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at (http://www.ecy.wa.gov/programs/wq/wastewater/index.html.

INPUT	WINTER
1. Ambient Temperature (deg C; 0<T<30)	15.1
2. Ambient pH (6.5<pH<9.0)	8.46
3. Acute TCAP (Salmonids present- 20; absent- 25)	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15

OUTPUT	
1. Intermediate Calculations:	
Acute FT	1.40
Chronic FT	1.41
FPH	1.00
RATIO	14
pKa	9.56
Fraction Of Total Ammonia Present As Un-ionized	7.3867%
2. Un-ionized Ammonia Criteria	
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	185.7
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0
3. Total Ammonia Criteria:	
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	2.5
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	0.6
4. Total Ammonia Criteria expressed as Nitrogen:	
Acute Ammonia Criterion as mg N	2.1
Chronic Ammonia Criterion as N	0.47

INPUT	SUMMER
1. Ambient Temperature (deg C; 0<T<30)	21.5
2. Ambient pH (6.5<pH<9.0)	7.99
3. Acute TCAP (Salmonids present- 20; absent- 25)	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15

OUTPUT	
1. Intermediate Calculations:	
Acute FT	1.00
Chronic FT	1.41
FPH	1.01
RATIO	14

pKa	9.35
Fraction Of Total Ammonia Present As Un-ionized	4.1440%

2. Un-ionized Ammonia Criteria

Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	258.5
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	41.7

3. Total Ammonia Criteria:

Acute Total Ammonia Criterion (mg NH3+ NH4/L)	6.2
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	1.0

4. Total Ammonia Criteria expressed as Nitrogen:

Acute Ammonia Criterion as mg N	5.1
Chronic Ammonia Criterion as N	0.83

				State Water Quality Standard		Max concentration at edge of...											
Parameter	Metal Criteria Translator as decimal Acute	Metal Criteria Translator as decimal Chronic	Ambient Concentration (metals as dissolved) *ug/L*	Acute *ug/L*	Chronic *ug/L*	Acute Mixing Zone *ug/L*	Chronic Mixing Zone *ug/L*	**LIMIT REQ'D?**	Effluent percentile value	*Pn*	Max effluent conc. measured (metals as total recoverable) *ug/L*	Coeff Variation *CV*	*s*	# of samples *n*	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
PHASE III																	
Winter Ammonia	1.00	1.00	19.0	2100.0	470.0	1575.0	460.2	NO	0.95	0.965	32540.00	0.60	0.55	85	0.91	19	67
Summer Ammonia	1.00	1.00	27.0	5100.0	830.0	1766.6	520.3	NO	0.95	0.942	31740.00	0.60	0.55	50	1.04	19	67
Silver (Ag)	0.85	0.85	0.08	1.0	NA	0.14	0.10	NO	0.95	0.861	1.08	0.60	0.55	20	1.36	19	67
Arsenic (As)	1.00	1.00	1.74	360.0	190.0	1.88	1.78	NO	0.95	0.861	3.20	0.60	0.55	20	1.36	19	67
Cadmium (Cd)	0.943	0.943	0.17	1.7	0.61	0.23	0.19	NO	0.95	0.861	1.00	0.60	0.55	20	1.36	19	67
Copper (Cu)	0.996	0.996	1.29	8.65	6.14	3.33	1.87	NO	0.95	0.861	29.40	0.60	0.55	20	1.36	19	67
Nickel (Ni)	0.998	0.997	0.84	770.74	85.60	1.11	0.92	NO	0.95	0.861	4.40	0.60	0.55	20	1.36	19	67
Lead (Pb)	0.466	0.466	0.06	29.30	1.1418	0.09	0.07	NO	0.95	0.861	1.00	0.60	0.55	20	1.36	19	67
Zinc (Zn)	0.996	0.996	2.55	62.26	56.86	6.10	3.56	NO	0.95	0.861	51.45	0.60	0.55	20	1.36	19	67
PHASE IV																	
Winter Ammonia	1.00	1.00	19.00	2100.0	470.0	1661.5	473.8	YES	0.95	0.965	32540.00	0.60	0.55	85	0.91	18	65
Summer Ammonia	1.00	1.00	27.00	5100.0	830.0	1863.2	535.5	NO	0.95	0.942	31740.00	0.60	0.55	50	1.04	18	65
Silver (Ag)	0.85	0.85	0.08	1.0	NA	0.15	0.10	NO	0.95	0.861	1.08	0.60	0.55	20	1.36	18	65
Arsenic (As)	1.00	1.00	1.74	360.0	190.0	1.89	1.78	NO	0.95	0.861	3.20	0.60	0.55	20	1.36	18	65
Cadmium (Cd)	0.943	0.943	0.17	1.70	0.61	0.24	0.19	NO	0.95	0.861	1.00	0.60	0.55	20	1.36	18	65
Copper (Cu)	0.996	0.996	1.29	8.65	6.14	3.44	1.88	NO	0.95	0.861	29.40	0.60	0.55	20	1.36	18	65
Nickel (Ni)	0.998	0.997	0.84	770.74	85.60	1.13	0.92	NO	0.95	0.861	4.40	0.60	0.55	20	1.36	18	65
Lead (Pb)	0.466	0.466	0.06	29.30	1.1418	0.09	0.07	NO	0.95	0.861	1.00	0.60	0.55	20	1.36	18	65
Zinc (Zn)	0.996	0.996	2.55	62.26	56.86	6.29	3.59	NO	0.95	0.861	51.45	0.60	0.55	20	1.36	18	65

Permit Limit Calculation Summary

This spreadsheet calculates water quality based permit limits based on the two value steady state model using the State Water Quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 99. Last revision date 9/98. Written by G. Shervey

	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator	Metal Criteria Translator	Ambient Concentration	Water Quality Standard Acute	Water Quality Standard Chronic	Average Monthly Limit (AML)	Maximum Daily Limit (MDL)
PARAMETER			Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	ug/L	ug/L
Ammonia	18.00	65.00	1.00	1.00	19.00	2100.00	470.00	**18680.7**	**37477.0**

Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations

Statistical variables for permit limit calculation

WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	LTA Coeff. Var. (CV)	LTA Prob'y Basis	Limiting LTA	Coeff. Var. (CV)	AML Prob'y Basis	MDL Prob'y Basis	# of Samples per Month	
ug/L	*ug/L*	*ug/L*	*ug/L*	*decimal*	*decimal*	*ug/L*	*decimal*	*decimal*	*decimal*	*n*	
37477	29334.00	12033.2	15471.7	0.60	0.99	12033.2	0.60	0.95	0.99	4.00	1.00

Dissolved oxygen concentration following initial dilution.

References: EPA/600/6-85/002b and EPA/430/9-82-011

Based on Lotus File IDOD2.WK1 Revised 19-Oct-93

INPUT	
1. Dilution Factor at Mixing Zone Boundary:	65
2. Ambient Dissolved Oxygen Concentration (mg/L):	8.9
3. Effluent Dissolved Oxygen Concentration (mg/L):	6.1
4. Effluent Immediate Dissolved Oxygen Demand (mg/L):	0
OUTPUT	
Dissolved Oxygen at Mixing Zone Boundary (mg/L):	8.86

Calculation of pH of a mixture of two flows.
Based on the
procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.)

Based on Lotus File PHMIX2.WK1 Revised 19-Oct-93

INPUT	
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	65.000
1. UPSTREAM/BACKGROUND CHARACTERISTICS	
Temperature (deg C):	21.48
pH:	8.46
Alkalinity (mg CaCO3/L):	53.00
2. EFFLUENT CHARACTERISTICS	
Temperature (deg C):	23.00
pH:	7.71
Alkalinity (mg CaCO3/L):	150.00

OUTPUT	
1. IONIZATION CONSTANTS	
Upstream/Background pKa:	6.37
Effluent pKa:	6.36
2. IONIZATION FRACTIONS	
Upstream/Background Ionization Fraction:	0.99
Effluent Ionization Fraction:	0.96
3. TOTAL INORGANIC CARBON	
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	53.43
Effluent Total Inorganic Carbon (mg CaCO3/L):	156.73
4. CONDITIONS AT MIXING ZONE BOUNDARY	
Temperature (deg C):	21.50
Alkalinity (mg CaCO3/L):	54.49

Total Inorganic Carbon (mg CaCO3/L):	55.02
pKa:	6.37
pH at Mixing Zone Boundary:	8.38

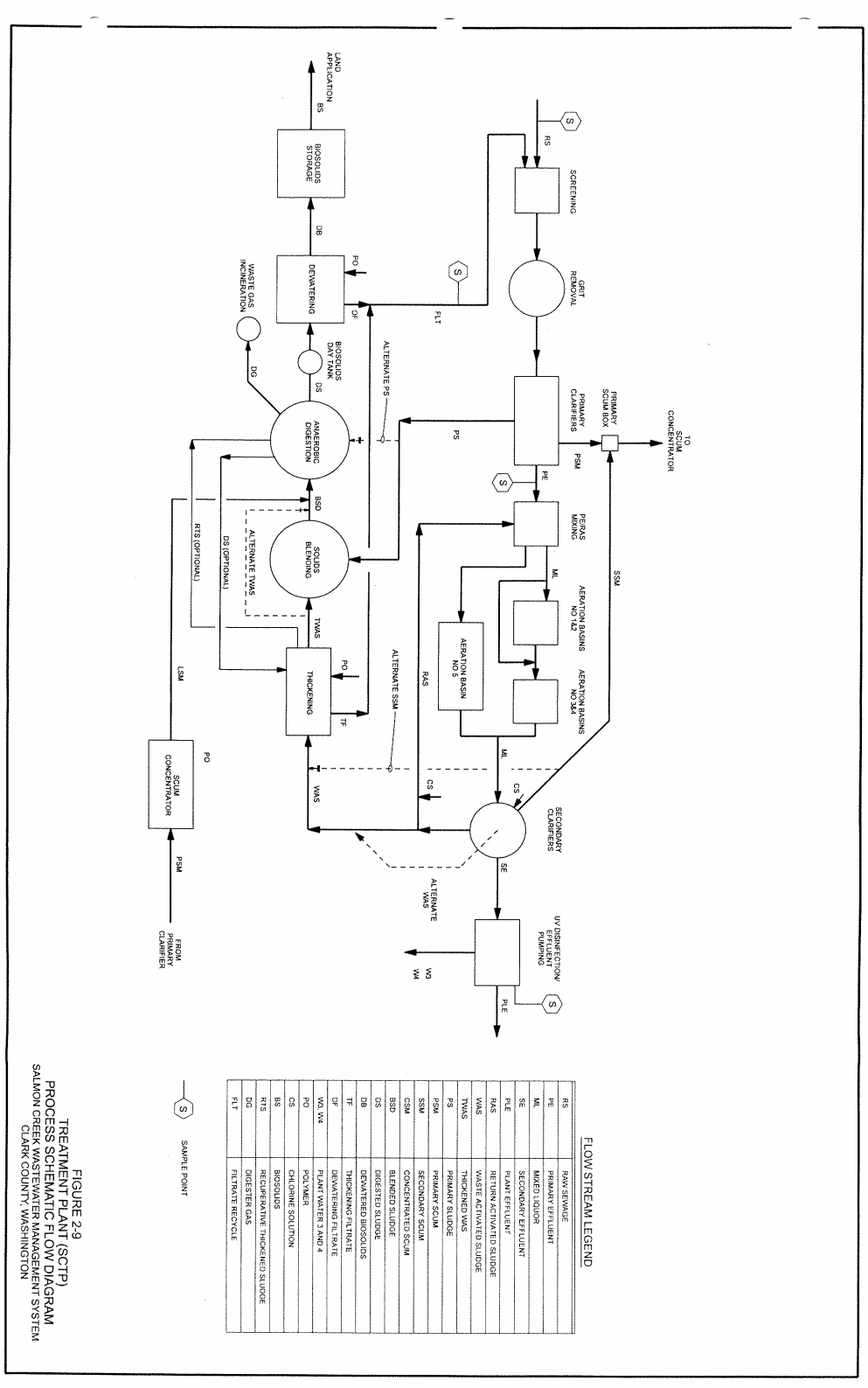

FIGURE 2-9
TREATMENT PLANT (SCTP)
PROCESS SCHEMATIC FLOW DIAGRAM
SALMON CREEK WASTEWATER MANAGEMENT SYSTEM
CLARK COUNTY, WASHINGTON

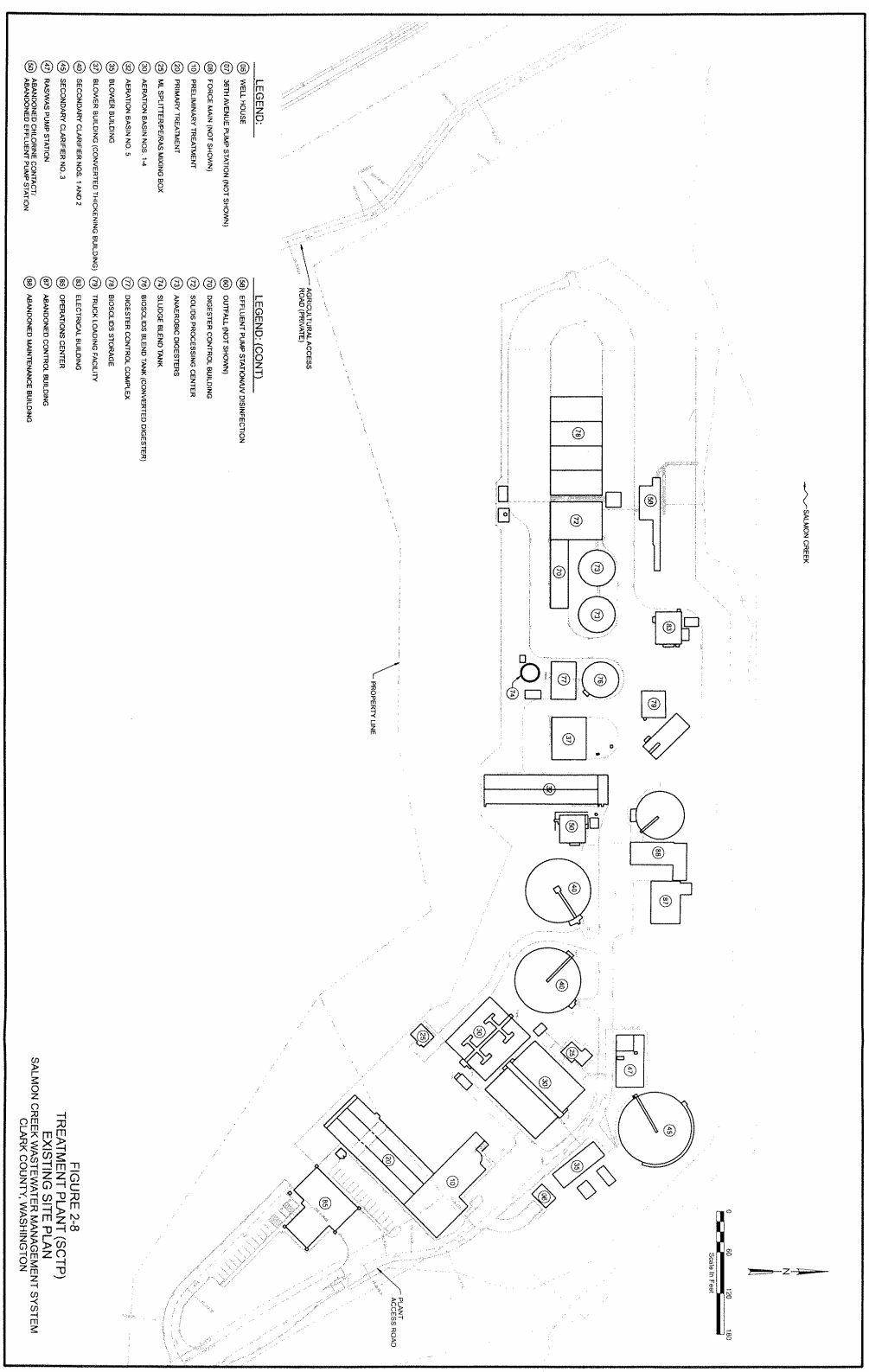

FIGURE 2-8
TREATMENT PLANT (SCTP)
EXISTING SITE PLAN
SALMON CREEK WASTEWATER MANAGEMENT SYSTEM
CLARK COUNTY, WASHINGTON

APPENDIX D--RESPONSE TO COMMENTS

The following comments were received from Clark County on March 18, 2005 regarding the NPDES Permit No. WA0023639 for the Salmon Creek Wastewater Treatment Plant, Hazel Dell Sewer District and City of Battle Ground. Clark County is the purveyor of the Salmon Creek Plant and the comments include those by Hazel Dell and Battle Ground as well. These comments were a result of the Public Review of this permit and fact sheet. Responses by the Department are given after each major comment.

Comment 1 - Industrial Wastewater Pretreatment Requirements:

The requirements of the draft permit and Fact Sheet are based on a fundamental misunderstanding of the agreements between Clark County Department of Public Works, the City of Battle Ground and Hazel Dell Sewer District with respect to industrial wastewater pretreatment program implementation and reporting. The Hazel Dell Sewer District is under contract with Clark County Public Works to provide industrial pretreatment services for all flows entering the Salmon Creek Treatment Plant (SCTP), including flows from the City of Battle Ground. Further, the City of Battle Ground has a contract with Hazel Dell Sewer District to provide industrial pretreatment services within the City's collection system. This misunderstanding is documented in the attached March 1, 2005, Battle Ground memorandum describing a meeting between Battle Ground and Ecology staff. As requested, the agreements which establish this arrangement are included as an attachment to these comments. In addition, the applicable language is included here.

The following language is from the Joint Contract among Clark County, the City of Battle Ground and Hazel Dell Sewer District for Sewage Treatment, Disposal, and Transport Services:

> "The County is responsible for the implementation of the Industrial Wastewater Pretreatment program, in compliance with the Clean Water Act, as a condition of its NPDES permit. The County's powers and duties shall include, but not be limited to, developing procedures, forms, and instructions; categorizing dischargers; records keeping; compliance tracking; establishment of annual limits; sampling, testing, and monitoring; preparation of control documents; and preparation of permits. The County may choose to contract, for the implementation and management of the Industrial Wastewater Pre-Treatment program with the District. The District and the City shall be responsible within their respective jurisdictions for identification of dischargers, issuance of control documents, issuance of permits and enforcement of compliance, and collection of any special fees, penalties, or other associated extraordinary charges."

The following language is from the Pretreatment Services Agreement among Clark County, the Hazel Dell Sewer District and the City of Battle Ground:

> "Ecology is currently the control Authority over all local jurisdictions pursuant to The Joint Contract. The District has accepted the responsibility to act as a local agency to support the State's Pretreatment Program. The County has contracted with the District, giving the District the authority for the purposes of development, administration and coordination with Ecology, or applicable Control Authority, of pretreatment requirements for all commercial and industrial users serviced by the Salmon Creek Tributary Sewer System (SCTSS). The District accepts the duty, as an authorized representative of the County, to develop, administer and coordinate this local, multi-jurisdictional Pretreatment Program to facilitate Ecology in the management of the State's Industrial Pretreatment Program.

The City designates the District as the agent of the City for the purposes of development, administration, management and coordination with Ecology of the NPDES permit pretreatment requirements for all commercial and industrial users serviced by the City. The District, on behalf of and as an agent for the City, agrees to perform technical and administrative duties necessary to develop, implement and conduct the activities required by the City's pretreatment ordinance including, but not limited to the following: (1) performing industrial user surveys; (2) providing technical services, such as sampling, chemical analysis and engineering advice; (3) providing permit assistance; (4) conducting inspection and compliance monitoring; and (5) coordinating Ecology information. In addition, the District is authorized, as an agent of the City, to take emergency action to stop or prevent any discharge that presents or may present an imminent danger to the health or welfare of humans, that reasonably appears to threaten the environment, or that threatens to interfere with the operation of the SCTSS."

The industrial pretreatment program managed by the Hazel Dell Sewer District therefore serves the entire service area tributary to the SCTP. As evidence of these arrangements, please refer to the 2004 SCTP Annual Pretreatment Report, submitted February 10, 2005. This report references Battle Ground throughout. Further, documentation from the original industrial users survey, completed in 1995, is attached.

The Permittee therefore requests that the ongoing compliance of the City of Battle Ground with pretreatment requirements be recognized by Ecology. Further, the Permittees request that all requirements for the City of Battle Ground and Hazel Dell Sewer District reflect these arrangements.

Response 1:

The Department has a responsibility to ensure that permit conditions that relate to collection system operations (such as spill reporting, operation and maintenance of collection systems, inflow and infiltration reporting, pretreatment implementation, etc.) are applied throughout the area served by the Salmon Creek treatment plant. The permit, as written, attempts to identify the requirements that are applicable to each owner or operator of wastewater collection and treatment infrastructure. It is the Department's intent that each permittee will be held independently responsible for compliance with the conditions of the permit that are identified as applicable to their operations.

That said, the entities are free to determine how they will comply with the permit requirements and who will perform the specific functions required. So for example, while the ultimate responsibility for implementation of pretreatment programs within the City of Battle Ground rests with the City, it is acceptable under the permit for the City to contract with the Hazel Dell Sewer District to perform these functions. Therefore, the Department believes that the permit as written defines each entities' responsibility and allows for flexibility in implementing the requirements.

Comment 2 - Infiltration and Inflow Requirements:

The requirements for I&I assessment and reporting outlined in the Fact Sheet and draft permit do not accurately depict the City of Battle Ground and Hazel Dell Sewer District's ongoing I&I reduction efforts, nor is the most recent I&I assessment considered. The most recent description of these agencies' efforts to reduce I&I and a corresponding assessment of the current I&I levels are presented in Section 2.5 of the Wastewater Facilities Plan/General Sewer Plan submitted to Ecology in July 2004. This assessment is consistent with the requirements of the U.S. EPA publication, I&I Analysis and Project Certification (included as an attachment). That publication and corresponding regulations provide that I&I is non-excessive and continued reduction efforts

are typically not cost effective when the 120 gallons per capita per day (gpcd) guideline is not exceeded. Tables 2-31 and 2-32 of the Wastewater Facilities Plan/General Sewer Plan show that the average per capita flow rate for both the Hazel Dell Sewer District and City of Battle Ground over the past 7 years is below the 120 gpcd guideline. Because of the approach to continuous I&I reduction, this evaluation, consistent with previous evaluations, indicates that I&I levels are below published standards for excessive I&I. The Permittee therefore requests that all requirements for the City of Battle Ground and Hazel Dell Sewer District reflect this finding. Annual I&I reporting, as currently done, is reasonable and in accordance with Ecology requirements, but additional I&I evaluations are unwarranted.

Response 2:

The Department acknowledges the I&I work done by each permittee. The proposed permit simply requires each owner or operator of wastewater collection system to conduct an annual I&I evaluation and submit a report to the Department. However, the Department believes that it is important for each collection system owner/operator to prepare such a report so that the changes specific to their system may be tracked over time. A previous finding that I&I was "non-excessive" by federal terms does not relieve a permittee from having to track I&I.

Comment 3 - City of Battle Ground Groundwater Monitoring:

The requirements for the City of Battle Ground to monitor the groundwater for potential contamination from their lagoon, although within Ecology's regulatory authority, is not germane to federal NPDES permit requirements for the discharge associated with the Salmon Creek Wastewater Treatment Plant. The Permittee requests that these requirements be removed from the NPDES permit and addressed through a separate, more appropriate regulatory mechanism directly between Ecology and the City of Battle Ground.

Response 3:

Section 140 of Chapter 173-216 WAC specifies that under normal circumstances State Waste Discharge permit requirements will be included under a relevant NPDES permit. A separate permit for Battle Ground would result in additional administrative expense for the City as well as payment of additional permit fees. Therefore, ground water monitoring will continue to be needed in this permit.

Comment 4:

The City of Battle Ground offers the following input for use in the direct dialogue between the City and the Department:

> Page 19 of the Fact Sheet references Department policy which requires groundwater monitoring in instances where "the storage medium has only a single layer of impervious membrane or, as in this case, a clay liner with no impervious membrane." Please provide the applicable rule or policy, or published specific controls to which the Fact Sheet refers.
>
> There is no basis for requiring Battle Ground to conduct a hydrogeologic study using the standards established in Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, or Implementation Guidance for the Ground Water Quality Standards.

The requirements of the draft permit and Fact Sheet appear to be based on a fundamental misunderstanding of the construction and operation of the McClure lift station, surge lagoon and equalization basin.

1. **Lagoon Lining:** Currently, the lagoon has a clay bottom liner and the sidewalls are lined with PVC fabric. In addition, the existing surge lagoon is sited upon a natural layer of clay soils.

2. **System Operation:** The lagoon operates as a winter surge basin, as opposed to a traditional flow equalization basin. A separate flow equalization basin that is both lined and mixed is used in conjunction with the surge basin. All biosolids bypass the surge lagoon and are directed to the flow equalization basin. One of the equalization basin's main functions is to keep biosolids in suspension before being directly discharged to the Salmon Creek Treatment Plant. The existing surge lagoon does not treat, store or land apply biosolids, nor does it function as a waste stream receiving facility.

The requirement to document the impacts of the surge lagoon on ground water quality does not seem reasonable, since the lagoon has a clay liner.

Response 4:

Under Chapter 173-201, the Ground Water Quality Standards, and the Department's Implementation Guidance for the Ground Water Quality Standards (April 1996, Ecology publication number #96-02), permit writers are directed to require a hydrogeologic evaluation and ground water monitoring where facilities have a potential to contaminate groundwater. This includes single-lined waste impoundments. The City of Battle Ground's lagoon or surge basin is a single, clay-lined facility that the Department believes has the potential to contaminate groundwater, therefore, this permit requirement will remain.

Comment 5:

Further, the City of Battle Ground takes exception to the extensive nature of the ground water evaluation program. The program described in Article S11 of the draft permit and the broad spectrum of sampling parameters identified in the Fact Sheet and permit appear to be more applicable to an industrial lagoon or program. The City of Battle Ground system does not include industrial waste discharges that may contain wastewater characteristics identified in the sampling parameters; therefore if those parameters were identified during monitoring, they would not be indicative of groundwater contamination from the surge lagoon. If required to monitor, we suggest that testing for water level, nitrogen forms (NH_3-N, NO_2-N, NO_3-N, and TKN) and fecal coliform would be completely adequate to identify the potential for groundwater contamination by leakage from the lagoon liner. Testing for the range of parameters detailed in the Fact Sheet and draft permit provides little value to either the City of Battle Ground or Ecology, and would result in unnecessary costs to ratepayers.

Response 5:

The purpose for the ground water requirements under the permit is to: 1) characterize the ground water quality and flow regime so that a monitoring system may be designed; 2) to then establish background conditions such that ground water limitations can be established; and 3) to ensure that operations at the lagoon do not violate the ground water quality standards. The evaluation

program contained in the permit and the parameters identified for ground water monitoring are the minimum necessary to meet these needs.

Comment 6:

Article S8 of the draft permit lays out specific requirements for removal or upgrade of the surge lagoon. These requirements appear to be independent of the groundwater monitoring program, described in Article S11. The City suggests a short term (one-year) monitoring program, comprised of the parameters listed above, to make a preliminary assessment of the need for removal or upgrade of the lagoon. The City of Battle Ground requests that this short term monitoring effort be completed in conjunction with the Engineering Report. The monitoring results will be utilized in preparation of the required Engineering Report. If the results of the monitoring and the Engineering Report recommended alternative allow for continued use of the lagoon in its present location, without modification to the existing lining, a continued long-term monitoring program may be appropriate and should be defined at that time. The City of Battle Ground requests that Article S11 of the draft permit be deleted in its entirety. If that is unacceptable to Ecology, the City requests that the requirements be clearly defined as conditional, only to be triggered if the Engineering Report results in planned long-term usage of the surge lagoon, if recommended. The timing of these conditional requirements should be subsequent to completion of the Engineering Report, allowing the City adequate time to perform the appropriate studies and implement the monitoring program.

Response 6:

The lagoon is currently in use and therefore it is the Department's position that monitoring should begin according to the schedule contained in the permit. The City is certainly free to make a decision as to the future of lagoon prior to the date outlined in S8. If the City finalizes plans for decommissioning the lagoon in the near term, the City may request a permit modification to remove the ground water monitoring requirements.

Comment 7 - Operation and Maintenance (O&M):

The requirement to submit to Ecology an updated O&M manual for the SCTP upon completion of the Phase 4 construction is reasonable, and consistent with Ecology requirements for other POTWs. However, the additional requirement for the City of Battle Ground and the Hazel Dell Sewer District to submit an O&M manual for their collection system components is not germane to federal NPDES permit requirements. Ecology's authority to request this information is recognized, but should be addressed with a more appropriate regulatory mechanism. The Permittees each have appropriate operation and maintenance programs for their assets and facilities. Maintenance records are maintained by the City of Battle Ground and the Hazel Dell Sewer District and are available for inspection as necessary.

Response 7:

All treatment components which require periodic inspection and maintenance must be operated in a manner that ensures proper wastewater collection and treatment occurs. The collection systems are part of the wastewater infrastructure covered by regulation and this permit and as such an O&M program ensuring proper operation is necessary. This item is covered generally under state regulation WAC 173-240. Although the NPDES is a federal permit, it is administered by each state and as such, the Permittee must abide by state requirements as well as federal.

Comment 8:

Based on discussions between the City of Battle Ground and Mr. David Knight, Ecology, on January 12, 2005 (documented in the attached memorandum dated February 18, 2005) it is the Permittee's understanding that these O&M requirements apply only to the McClure Lift Station and the 36th Avenue Pump Station. It is assumed that when major components of the Phase 4 program are constructed, such as the proposed Klineline Pump Station, an O&M manual for this facility will be provided to Ecology. Please define within the permit language the applicability of this requirement to specific City and District assets.

Response 8:

The need for an asset-specific O&M Manual is driven by the complexity of the asset. For example, the Department understands that Hazel Dell has dozens of pump stations and hundreds of STP systems. The Department does not expect a specific O&M Manual for each. In this case, a description of the District's program to inspect and maintain the system components suffices. However, where an asset is more complex and requires a higher degree of operational oversight and maintenance, such as Battle Ground's storage lagoon and pump station, an asset-specific O&M Manual is warranted.

Comment 9 - Approach Used to Determine Reasonable Potential to Exceed the Surface Water Quality Requirements for Ammonia:

The draft permit and Fact Sheet indicate that in Phase 4 the Salmon Creek Treatment Plant has a reasonable potential to exceed the ambient water quality criteria for ammonia under winter conditions. The reasonable potential analysis used to determine if the Salmon Creek Treatment Plant effluent discharge will meet or exceed the ambient water quality criteria is technically flawed in two regards.

- Calculation of ambient river pH based on very limited data population.
- Application of ambient river pH data in lieu of pH mixture value at the acute and chronic mixing zone boundaries.

The following presents the basis for this determination.

Response 9:

The federal Clean Water Act permit writing process is built around an assumption that a permit writer will not always have a complete data set. In these cases, it is understood that the permit writer will have to make judgments as to which data is used to determine background conditions and derive water quality-based limits.

Comment 10 - Calculation of Ambient River pH based on Very Limited Data Population:

The reasonable potential calculation assumes that the ambient or background river pH is 8.46 under critical ambient winter conditions (based on 6 data values from 1994 and 9 data values from 2002-2003). In an effort to improve this very limited data population for the Columbia River, available agency pH data sets were developed and provided to Ecology in early December 2004. The Permittee requests that these more than 300 data values collected by Ecology, USGS, and Oregon Department of Environmental Quality be applied.

Using all pH data values (1967-2003), the winter 90th percentile pH = 8.1 and the summer 90th percentile pH = 8.1. The use of the winter 90th percentile pH of 8.1 (based on all pH data values) will result in corrected ammonia water quality criteria and the finding that the Salmon Creek Treatment Plant does not have a reasonable potential to exceed the ambient water quality criteria for ammonia under Phase 3 or 4 flows.

The Permittee maintains that the credible resolution of the river pH issue is foundational to the reasonable potential analysis, and therefore requests that Ecology review and apply the complete 1967 to 2003 pH data sets. It is understood that Ecology has expressed some reservation about the age of portions of the data presented, but a review of the data shows there has not been a net shift in ambient pH during the period of record. This conclusion is further supported by the most relevant data that are of the most recent origin and are in the closest proximity to the discharge point.

Response 10:

The Department has examined the additional data identified in the comment and concluded that this data, due to its age and the major changes in the river since it was collected, does not adequately represent current conditions. The Department believes that the pH data that was used in conducting the reasonable potential analysis is still the best information available at this time.

That said, the Department agrees that the data set is limited and that additional, more recent data from the vicinity of the outfall would be very useful in determining appropriate limits for ammonia. Therefore, while not required by this permit, the Department encourages the Permittees to collect additional receiving water data for pH, temperature, and background ammonia in the vicinity of the outfall. If the Permittees choose to do this, the Department recommends that a Quality Assurance Project Plan (QAPP) be prepared and submitted to the Department for review prior to data collection. If after collection of additional data, it appears that different water quality-based effluent limits for ammonia are appropriate, the Permittees may request a permit modification based on the new information.

Comment 11 - Application of Ambient River pH Data in Lieu Of pH Mixture Value at the Acute and Chronic Mixing Zone Boundaries:

The calculation of pH mixture at the chronic mixing zone boundary shows that the mixed pH is 8.38 at the chronic mixing zone boundary (based on the maximum effluent pH of 7.7 and a river pH of 8.46). This pH mixture should be applied in the calculation of ambient water quality criteria for the reasonable potential calculation.

If this worst-case mixed pH of 8.38 were applied instead of 8.46 in the calculation of ambient water quality criteria for the reasonable potential calculation, then the maximum Salmon Creek Treatment Plant ammonia discharge under Phase 4 does not have a reasonable potential to exceed water quality criteria for ammonia, based on the correct chronic ammonia criteria.

Response 11:

Regarding the comment determining the pH of the effluent/ambient mixture, “mixing” of pH is not consistent with the Department guidance for determining water quality-based effluent limits.

Comment 12 - Other Considerations:

If Ecology does not accept the use of the extensive existing river pH data (summarized above) and the mixed effluent/river pH approach is unacceptable to Ecology, then the Permittee offers the following approach be utilized when preparing the final permit.

Collection of Additional Ambient pH Data:

The Permittee requests that in lieu of implementing an effluent ammonia limitation based on very limited pH data sets (as indicated in the Fact Sheet), that a reasonable approach is to establish interim effluent ammonia limits, while additional seasonal ambient pH data are collected near the Salmon Creek outfall, and then to establish final effluent ammonia limits (if appropriate). The seasonal pH data collections would occur during the period when the interim effluent limits for the Phase 3 system are applicable. Ecology would require a plan of study to collect contemporary Columbia River pH data upstream of the Salmon Creek WWTP discharge at RM 96. This permit condition would specify the due date for the Plan of Study (or Sampling Plan), the duration of sampling, and the date for submission of the study report. At the conclusion of the study, these ambient pH data would be used in reasonable potential calculations along with effluent ammonia data to determine if final effluent ammonia limits are needed before the Phase 4 construction level of the Salmon Creek plant is effective. In exchange for completing the pH study, the Permittee requests that the effluent ammonia limitations contained in the draft permit be footnoted as interim limits, and that the interim limits are to be revised upon completion of the pH sampling study and performing revised reasonable potential calculations.

Response 12:

It is the Department's understanding that, based on current growth projections and attendant construction schedules; it is unlikely that Phase IV limits will apply during the five-year term of the permit. Therefore, the Department believes that keeping the proposed ammonia limit in the permit for Phase IV while additional data is collected will not pose an undue burden on the Permittees.

Additional Comments on the Fact Sheet

Comment 13 - Page 3 - City of Battle Ground Statistics:

The reference in second sentence of first full paragraph to ". . . 2,762 connections . . ." is incorrect and should be deleted. The ERU values contained in the sentence is correct and more appropriately reflects the Battle Ground system.

Response 13:

The sentence has been changed using the information found in the July 2004 Facility Plan and will read as follows:

There are 34 sub-basins located in the Battle Ground service area with an estimated 5,349 ERUs as reported in 2004 (CH2MHill, 2004). The population estimate for 2003 is 13,039 within the City of Battle Ground.

Comment 14:

The length of 18-in pipe "10,460 ft" shown in the table is incorrect and should be replaced with "10,100 ft."

Response 14:

The change has been made as requested

Comment 15 - Page 4:

In paragraph 6, the characterization of the District and City industrial users is incorrect. Note that a fourth SIU has been added to the system. The existing text should be replaced with the following:

> "There are four significant industrial users that discharge from the Hazel Dell Sewer District to the Salmon Creek Wastewater Treatment Plant: Shell Solar, Implanted Materials Tech. (IMAT), nLight Corp., and ProTech, Inc. All four industries have state-issued wastewater discharge permits. All four are subject to local limits and categorical standards described in federal statutes. There are no significant industrial users within the City of Battle Ground."

Response 15:

The sentence was changed to include the new SIU (Protech Inc.) as requested.

Comment 16 - Page 5:

In the first paragraph on page 5, there is an incorrect statement indicating, "The City of Battle Ground has not had to submit a pretreatment report or an industrial user survey." As described above, Battle Ground has contracted with the Hazel Dell Sewer District to provide all pretreatment services for Battle Ground's system. Battle Ground performed an industrial user survey in 1995. The Battle Ground service area has been included in the annual pretreatment reports prepared by the District, and new industrial users are required to submit pretreatment surveys which are reviewed by HDSD Pretreatment staff.

Response 16:

It is acceptable to have Hazel Dell conduct surveys for Battle Ground. However, the pretreatment report should be clearly marked as including Battle Ground and clearly marking the Battle Ground information in the report will still need to meet the requirements listed in the permit.

Comment 17 - Page 6:

In the last sentence of the first paragraph, suggest that "long application contractors" should be replaced with "long-haul/application contractors."

Response 17:

This change will be made as suggested.

Comment 18 - Page 7:

In the footnote to Table 1, the statement "Before January 2003, ammonia was not regularly reported in the state-required DMR and only monthly averages were reported on the EPA form" is incorrect. Ammonia has been consistently reported in accordance with the requirements of the discharge permit since that permit was placed into effect in 1995.

Response 18:

Our search of the records did not provide additional data that could be used. The ammonia was sampled on a monthly basis before 2003 rather than multiple times a month. Therefore we did not run our statistics on that older data. Our interest is in how the treatment plant has been most recently operated. The newer data from 2003 forward provided the best data set to examine the most recent operation.

Comment 19:

In the first paragraph below the Table 1 footnote, the Fact Sheet states "The Department's assessment of the Salmon Creek Wastewater Treatment Plant under phase III & phase IV shows that the facility should be able to remove enough ammonia in order to meet limits under the accompanying permit."

The Permittee seeks to clarify for the public record the assumptions behind the secondary treatment process design. The current facility designed for Phase 3 flows and loadings was sized to nitrify and denitrify during summer conditions. The current facility would presumably be able to nitrify in the winter, but the assessment of the specific capacity under higher flow and lower temperature conditions has not been evaluated in detail. Ecology's draft permit effluent limitations do not require ammonia removal in the summer or winter under Phase 3, so the Permittee concludes that further evaluation of this Phase 3 condition is not warranted. The current facility as constructed can meet the proposed Phase 3 permit conditions.

The WFP/GSP document submitted to Ecology in July 2004 proposes a secondary treatment process expansion in Phase 4 that is sized for both Phase 4 and Phase 5 flows and loadings assuming a non-nitrifying operation. Therefore, in concept, there is some additional capacity during Phase 4 that could be utilized for ammonia removal. However, it is important to note that the scenario of ammonia removal, particularly wintertime ammonia removal, during the Phase 4 period has not been evaluated in detail by the Permittee. This is not likely to be an issue during the five-year period addressed in this proposed draft permit (2005-2010) because the Phase 4 design flows and loads are not projected to be realized within this timeframe.

Regardless, the Permittee requests that its comments provided on the approach to determine the reasonable potential to exceed surface water quality requirements for ammonia be considered by Ecology. These comments provide additional analysis and indicate that ammonia does not represent a reasonable potential to exceed surface water quality standards. Therefore, the effluent ammonia limitation in the draft permit should be removed.

Response 19:

The comments are noted and have been addressed in previous responses. The Department believes the ammonia limit for Phase IV should remain in the permit at this time. Additional monitoring may provide new information which may be used to refine limits in the future.

Comment 20 - Page 8:

In the first paragraph, the Fact Sheet states "Most of the parameters had samples values that were below the detection level. The 95th percentiles were calculated using the detection values as they occurred." Although this may serve as a worst-case scenario, please confirm that all metals effluent sample values that were not detected were entered at ½ the method detection limit in the determination of the 95th percentile value for a metal.

Response 20:

The Department used the detection value and did not find a reasonable potential, therefore there is no reason to rerun the spreadsheet with different values. Using ½ the method detection is one method of running the evaluation, but not the only method available and not necessary in this case.

Comment 21 - Page 11 - Surface Water Quality-Based Effluent Limitations:

Pages 11-13. All of the citations of the WAC 173-201A are based on the previous version of the state water quality standards and not the current standards, as amended July 1, 2003. It is the Permittee's understanding that Ecology will not apply the revised standards until EPA approves them. A clarifying statement to this effect would be helpful to future readers of the Fact Sheet.

Response 21:

This statement is accurate and noted. However, the text need not change.

Comment 22 - Page 13 - Consideration of Surface Water Quality-Based Limits for Numeric Criteria:

The meaning and intent of the first sentence of this section is not clear: "Pollutant concentrations in the proposed discharge exceed water quality criteria with technology-based controls which the Department has determined to be AKART." It is unclear to which pollutants this statement refers. Further, the applicable rule where Ecology has published specific controls determined to be AKART for specific pollutants is unknown.

Response 22:

This is the standard language used in all permits which follows the technology-based effluent limits (shown in table 3, page 9). These include pH, F.C. BOD_5, and TSS as discussed in Chapter 173-221 WAC.

Comment 23:

The characterization of the ambient Columbia River pH referenced in the third paragraph on page 14 of the Fact Sheet is incorrect because relevant available data has not been used and limited data from a site over 40 miles away has been disproportionately represented. Request that Ecology apply the use of all applicable data values to establish ambient river pH levels. Refer to discussion of river pH provided in response to the technical calculations in Appendix C of the Fact Sheet.

Response 23:

As discussed previously, the Department believes the pH data that the Department used is still the best information available at this time. The Department does not believe the old pH data is representative of present river conditions with the multiple changes that have occurred on the Columbia.

Comment 24 - Page 14 - Ambient Conditions Table:

The characterization of the ambient Columbia River pH referenced in the table on page 14 of the Fact Sheet is incorrect because relevant available data has not been used and limited data from a site over 40 miles away has been disproportionately represented. Request that Ecology apply the use of all applicable data values to establish ambient river pH levels. Refer to discussion of river pH provided in response to the technical calculations in Appendix C of the Fact Sheet.

Response 24:

See the above response under No. 23.

Comment 25 - Page 15 – pH:

The characterization of the ambient Columbia River pH referenced at the end of page 15 of the Fact Sheet is incorrect because relevant available data has not been used and limited data from a site over 40 miles away has been disproportionately represented. Request that Ecology apply the use of all applicable data values to establish ambient river pH levels. Refer to discussion of river pH provided in response to the technical calculations in Appendix C of this Fact Sheet. The calculation of pH mixture has been conducted correctly, but the input data for background river pH is not correct. The calculated mixed pH (worst-case) at the mixing zone boundary needs to be applied in the calculation of the ambient water quality chemical criteria for ammonia in Appendix C.

Response 25:

See the above response under No. 23.

Comment 26 - Toxic Pollutants:

Basis of the critical condition for toxic pollutant ammonia appears to be based on several incorrect assumptions regarding Columbia River pH and flow. Refer to discussion provided in response to the technical calculations in Appendix C of this Fact Sheet.

Response 26:

See the above response under No. 23 and No 10.

Comment 27 - Page 16:

The calculations indicate that in Phase 4 the Salmon Creek Treatment Plant has a reasonable potential to exceed the ambient water quality criteria for ammonia under winter conditions. Based on several accounts this conclusion appears to be in error. Please refer to the discussion in the comments related to Appendix C of this Fact Sheet.

Response 27:

See the above response under No. 23 and No 10.

Comment 28:

The Fact Sheet states that a slight reduction of effluent ammonia will allow the facility to meet the criterion, and that the Treatment Plant does have some ability to nitrify/denitrify. No exceptions to this statement are taken, other than to note that the Phase 4 and 5 facilities as proposed were not planned to achieve nitrification. Certainly, the facilities have some ability to provide a slight reduction in ammonia under certain conditions with the Phase 4 flows and loads, although this hasn't been formally evaluated in detail.

Response 28:

The Department has approved phase 4 and by our analysis there is plenty of aeration and tank size to deliver a high degree of nitrification if it is applied. This would result in reducing the ammonia enough to meet limits. This has been confirmed in conversations with the facility's consulting engineer and the Department's facility manager. The Department has not yet approved Phase 5, the need for nitrification for this phase should be examined as additional information is developed.

Comment 29 - Page 19 - Human Health:

The requirement for the City of Battle Ground to monitor the groundwater for potential contamination from their lagoon, although within Ecology's regulatory authority, is not germane to federal NPDES permit requirements. The Permittee requests that this requirement be removed from the NPDES permit and addressed through a separate, more appropriate regulatory mechanism directly between Ecology and the City of Battle Ground.

Response 29:

See the above response No. 3.

Comment 30 - Page 22 - Operation and Maintenance (O&M):

The requirement for Hazel Dell Sewer District and the City of Battle Ground to provide Operation and Maintenance Manuals are not germane to federal NPDES permit requirements. The applicability of this requirement as it specifically applies to District and City assets is unclear.

Response 30:

See responses No. 7 and No. 8. The Department discussed this issue with Battle Ground in a meeting held on January 12, 2005.

Comment 31 - Page 23 - Requirements for Performing an Industrial User Survey:

Battle Ground performed an Industrial User Survey in 1995. These records are attached as described in the introductory comments. Hazel Dell continues to report and update this

information as part of the annual pretreatment reporting process, as evidenced in Form 5 of the recently submitted 2004 SCTP Annual Pretreatment Report.

Response 31:

Comment noted.

Comment 32 - Page 24 - Note that the following applicable works should be referenced in the Fact Sheet:

CH2M HILL: 1995, October. Final Environmental Impact Statement. Salmon Creek Wastewater Treatment Plant. Phase 3 Expansion, Phase 4 Expansion, Ultimate Buildout Expansion(s). Clark County Department of Public Works. Vancouver, WA.

MacKay & Sposito: 2001, March. Final Comprehensive General Sewer Plan. Hazel Dell Sewer District. Clark County, WA.

Response 32:

The reference section is intended for items that were directly sited or referred to in the text. We did not site these items; therefore they should not be listed in the references.

Comment 33 - Pages 34-40 - Appendix C – Technical Calculations:

The calculations state that in Phase 4 the Salmon Creek Treatment Plant has a reasonable potential to exceed the ambient water quality criteria for ammonia under winter conditions. This reasonable potential calculation (pg 36 of Fact Sheet) indicates that the maximum ammonia discharge from the Salmon Creek Treatment Plant (under Phase 4) would be only 4 ug/L above the chronic water quality criteria, under critical ambient winter conditions. The reasonable potential analysis used to determine if the Salmon Creek Treatment Plant effluent discharge will meet or exceed the ambient water quality criteria is technically flawed in the following regards.

Calculation of ambient river pH based on very limited data population.

Application of ambient river pH data in lieu of pH mixture value at the acute and chronic mixing zone boundaries.

Response 33:

See previous responses to comments on pH.

Comment 34 - The following presents the basis for this determination:

Calculation of Ambient River pH based on Very Limited Data Population

The reasonable potential calculation assumes that the ambient or background river pH is 8.46 under critical ambient winter conditions (based on 6 data values from 1994 and 9 data values from 2002-2003). In an effort to improve this very limited data population for the Columbia River, CH2M HILL researched available agency pH data sets for the Columbia River in the region of the Salmon Creek Treatment Plant discharge at River Mile 96. A technical memorandum titled *Summary of pH Measurements in the Columbia River – RM 54 to 138* (CH2M HILL, December 6, 2004) was developed and provided to Ecology in early December

2004. These data sets are identified and summarized in Table 1. We request that these more than 300 data values collected by Ecology, USGS, and Oregon Department of Environmental Quality be applied. Only data sets that met data quality review standards by state and federal agencies were included in the summary, and these data sets were designated as either A or A+ data quality in the agency data records.

Response 34:

See above Response No. 9.

Comment 35:

Figure 1 provides a plot of Columbia River pH data for 1967-2003 and illustrates the wide range in seasonal pH variability, and also shows that river pH values in the earlier extensive data sets (1967-1972) are consistent with those more recent pH data collected in 1994-2003. Using all pH data values (1967-2003), the winter 90th percentile pH = 8.1 and the summer 90th percentile pH = 8.1. The use of the winter 90th percentile pH of 8.1 (based on all pH data values) will result in corrected ammonia water quality criteria and the finding that the Salmon Creek Treatment Plant does not have a reasonable potential to exceed the ambient water quality criteria for ammonia under Phase 3 or 4 flows.

Response 35:

See above Response No. 10.

Comment 36:

The Permittee maintains that the credible resolution of the river pH issue is foundational to a factually-based reasonable potential analysis, and therefore request that Ecology review and apply the complete 1967 to 2003 pH data sets. It is understood that Ecology has expressed some reservation about the age of portions of the data presented, particularly concerning the possible effects of hydropower projects in the upper Columbia or lower Snake rivers that may have resulted in a shift in the ambient Columbia River pH during the period represented by the complete data set. This issue has been further investigated as summarized by Figure 1. Figure 1 depicts the pH values over time and demonstrates that there has not been a net shift in ambient pH during the period of record. This conclusion is further supported by the most relevant data that are of the most recent origin and are in the closest proximity to the discharge point. Therefore, the previous request to include all data sets is still relevant.

Response 36:

See above responses No. 9 and No. 10.

Comment 37 - Application of Ambient River pH Data in Lieu Of pH Mixture Value at the Acute and Chronic Mixing Zone Boundaries:

The Fact Sheet calculations show that the Salmon Creek Treatment Plant does not have a reasonable potential to exceed the ambient water quality criteria for pH under summer or winter conditions. The calculation of pH mixture at the chronic mixing zone boundary (pg 39 and 40 of Fact Sheet) shows that the mixed pH is 8.38 at the chronic mixing zone boundary (based on the maximum effluent pH of 7.7 and a river pH of 8.46). This pH mixture should be applied in the

calculation of ambient water quality criteria for the reasonable potential calculation (pg 34 of the Fact Sheet).

Response 37:

See above response No. 11.

Comment 38:

If this worst-case mixed pH of 8.38 were applied instead of 8.46 in the calculation of ambient water quality criteria for the reasonable potential calculation (pg 31 of the Fact Sheet), the chronic ammonia criteria would be 560 ug/L at the mixing zone boundary. The maximum Salmon Creek Treatment Plant ammonia discharge under Phase 3 and 4 does not have a reasonable potential to exceed water quality criteria for ammonia, based on the correct chronic ammonia criteria. The calculations for ammonia water quality criteria are provided in Table 2 below, and these show the corrected acute and chronic ammonia criteria using the pH mixture based on a 90th percentile river pH of 8.46 (15 data values) and a 90th percentile river pH of 8.1 (all data sets).

Summarizing, the calculation of pH of a mixture of the two flows (river and plant effluent) should be applied at the mixing zone boundary, and the resulting mixed pH should be used in the reasonable potential calculations.

Response 38:

See above response No. 11.

Note: There are additional comments and responses to the permit following the next four pages of attachments which were provided by the Permittee.

Figure 1
Columbia River pH Data – 1967-2003

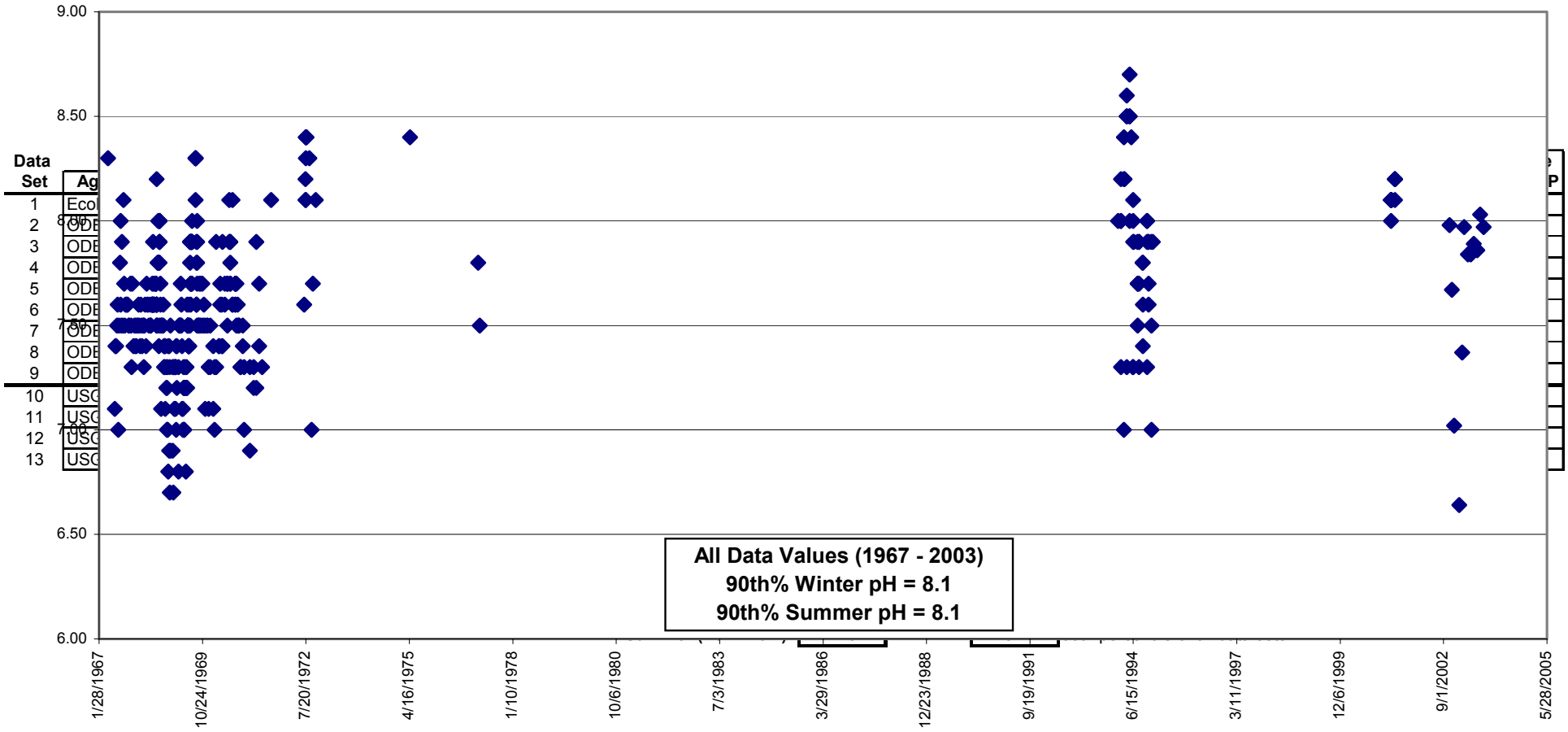

Table 2
Calculations For Ammonia Water Quality Criteria

Calculation Of Ammonia Concentration and Criteria for fresh water. Based on EPA Quality Criteria for Water (EPA 400/5-86-001) and WAC 173-201A. Revised 1-5-94 (corrected total ammonia criterion). Revised 3/10/95 to calculate chronic criteria in accordance with EPA Memorandum from Heber to WQ Stds Coordinators dated July 30, 1992.

INPUT		**Winter Ammonia Chronic Criteria Calculation**
1. Ambient Temperature (deg C; 0<T<30)	15.1	
2. Ambient pH (6.5<pH<9.0)	**8.38**	**pH resulting from mixture of river and effluent at 65:1 ratio (chronic)**
3. Acute TCAP (Salmonids present- 20; absent- 25)	20	(see pages 36 and 37 of Fact Sheet)
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15	
OUTPUT		
1. Intermediate Calculations:		
Acute FT	1.40	
Chronic FT	1.41	
FPH	1.00	
RATIO	14	
pKa	9.56	
Fraction Of Total Ammonia Present As Un-ionized	6.2081%	
2. Un-ionized Ammonia Criteria		
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	185.3	
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0	
3. Total Ammonia Criteria:		
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	3.0	
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	0.7	
4. Total Ammonia Criteria expressed as Nitrogen:		
Acute Ammonia Criterion as mg N	**2.5**	
Chronic Ammonia Criterion as N	**0.56**	
		Winter Ammonia Acute Criteria Calculation
INPUT		
1. Ambient Temperature (deg C; 0<T<30)	15.1	
2. Ambient pH (6.5<pH<9.0)	**8.25**	**pH resulting from mixture of river and effluent at 18:1 ratio**
3. Acute TCAP (Salmonids present- 20; absent- 25)	20	
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15	
OUTPUT		
1. Intermediate Calculations:		
Acute FT	1.40	
Chronic FT	1.41	
FPH	1.00	
RATIO	14	
pKa	9.56	
Fraction Of Total Ammonia Present As Un-ionized	4.6773%	
2. Un-ionized Ammonia Criteria		
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	185.3	
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0	
3. Total Ammonia Criteria:		
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	4.0	
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	0.9	
4. Total Ammonia Criteria expressed as Nitrogen:		
Acute Ammonia Criterion as mg N	**3.3**	
Chronic Ammonia Criterion as N	**0.74**	

Table 2
Calculations For Ammonia Water Quality Criteria

Revised Ammonia Criteria - Based on 1967-2003 River pH Data Sets		
INPUT		**Winter Ammonia Chronic Criteria Calculation**
1. Ambient Temperature (deg C; 0<T<30)	15.1	
2. Ambient pH (6.5<pH<9.0)	**8.17**	**pH resulting from mixture of river and effluent at 65:1 ratio (chronic)**
3. Acute TCAP (Salmonids present- 20; absent- 25)	20	(see pages 36 and 37 of Fact Sheet)
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15	
OUTPUT		
1. Intermediate Calculations:		
Acute FT	1.40	
Chronic FT	1.41	
FPH	1.00	
RATIO	14	
pKa	9.56	
Fraction Of Total Ammonia Present As Un-ionized	3.9212%	
2. Un-ionized Ammonia Criteria		
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	185.3	
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0	
3. Total Ammonia Criteria:		
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	4.7	
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	1.1	
4. Total Ammonia Criteria expressed as Nitrogen:		
Acute Ammonia Criterion as mg N	**3.9**	
Chronic Ammonia Criterion as N	**0.88**	
		Winter Ammonia Acute Criteria Calculation
INPUT		
1. Ambient Temperature (deg C; 0<T<30)	15.1	
2. Ambient pH (6.5<pH<9.0)	**8.09**	**pH resulting from mixture of river and effluent at 18:1 ratio**
3. Acute TCAP (Salmonids present- 20; absent- 25)	20	
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15	
OUTPUT		
1. Intermediate Calculations:		
Acute FT	1.40	
Chronic FT	1.41	
FPH	1.00	
RATIO	14	
pKa	9.56	
Fraction Of Total Ammonia Present As Un-ionized	3.2832%	
2. Un-ionized Ammonia Criteria		
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	185.3	
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	42.0	
3. Total Ammonia Criteria:		
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	5.6	
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	1.3	
4. Total Ammonia Criteria expressed as Nitrogen:		
Acute Ammonia Criterion as mg N	**4.6**	
Chronic Ammonia Criterion as N	**1.05**	

Additional Comments on the Draft Permit

Comment 39 - Page 6 - Submittals for the Hazel Dell Sewer District:

S.4.E. Replace "Infiltration and Inflow Evaluation" with "Infiltration and Inflow Report."

Response 39:

The Department declines the change. The standard language in all our permits is for an "evaluation."

Comment 40 - Submittals for the City of Battle Ground:

S.4.E. Replace "Infiltration and Inflow Evaluation" with "Infiltration and Inflow Report."

Response 40:

The Department disagrees. See above response

Comment 41:

S.6.D. Delete reference to "no existing pretreatment program" as it is incorrect. Please refer to discussion of industrial wastewater pretreatment requirements provided in the introductory portion of these comments. Battle Ground performed an initial industrial user survey "sweep" of existing users in 1995. Battle Ground continues to monitor new industry and tenant improvements via their development review process, and the District is part of that process for commercial and industrial connections. An updated industrial user survey is appropriate once per permit cycle.

Response 41:

This language shown above in quotes could not be found in the draft permit. Therefore, no change was made.

Comment 42:

S.8.A. The City of Battle Ground requests that the submittal date for an Engineering Report for Equalization Lagoon be amended from November 15, 2006, to November 15, 2007.

Response 42:

This change is acceptable to the Department and it has been made to the dates.

Comment 43:

S.8B. The City of Battle Ground requests the submittal date for Engineering Plans and Specs for Equalization Lagoon be amended from May 15, 2007, to May 15, 2009.

Response 43:

We will only move the date to 2008 and not delay until 2009. It is our experience that Plans and Specifications can produced in the time available.

Comment 44:

S.11.A The City of Battle Ground requests that this article be deleted. Refer to comments below pertaining to Article S.11.

Response 44:

The Department disagrees. The requirement will remain. See above response No. 3.

Comment 45:

S.11.B The City of Battle Ground requests that this article be deleted. Refer to comments below pertaining to Article S.11.

Response 45:

The Department disagrees. The requirement will remain. See above response No. 3.

Comment 46:

S.11.C The City of Battle Ground requests that this article be deleted. Refer to comments below pertaining to Article S.11.

Response 46:

The Department disagrees. The requirement will remain. See above response No. 3.

Comment 47:

S.11.D The City of Battle Ground requests that this article be deleted. Refer to comments below pertaining to Article S.11.

Response 47:

The Department disagrees. The requirement will remain. See above response No. 3.

Comment 48 - Page 8 - Special Conditions:

The draft permit and Fact Sheet propose that three entities (Clark County Department of Public Works, the Hazel Dell Sewer District, and the City of Battle Ground) be named as multiple permittees. This is a change from the current permit, wherein Clark County Department of Public Works is the Permittee. While the three entities recognize Ecology's regulatory authority over the matters addressed in these documents, it is noted that many of the provisions are not germane to a federal NPDES permit and that other regulatory mechanisms are more appropriate for addressing certain provisions as is noted elsewhere in this document.

Response 48:

See previous responses. The Department is charged with ensuring that the provisions of state and federal water pollution control law and regulation are applied throughout the collection area served by the Salmon Creek treatment plant. The Department's approach on this permit is to identify the requirements of the permit that apply to each Permittee. The Department will hold each Permittee separately and independently responsible for their applicable permit requirements.

Comment 49:

In June of 2000 an application for permit renewal was prepared by Clark County for the discharge of treated wastewater from the Salmon Creek Treatment Plant to the waters of the state in accordance with current permit requirements and applicable Washington Administrative Codes. Clark County was notified that the application for their permit renewal was complete in a letter dated November 10, 2004. The Hazel Dell Sewer District and the City of Battle Ground did not apply for a permit, only Clark County applied for an NPDES permit. The entities request that Permittee structure be retained as per Clark County's application, and as per the current permit structure.

Response 49:

Again, the Department's need is to ensure that the water pollution control facilities that are associated with the Salmon Creek treatment plant are properly operated and maintained, that spills are reported, pretreatment programs implemented, and other related conditions of the permit are met. In owning and operation water pollution conveyance and control systems, the contributing jurisdictions of Hazel Dell Sewer District and the City of Battle Ground have a responsibility to ensure that the provisions of the permit related their collections systems are met. It is the Department's position that the permit coverage may be extended to these entities.

Comment 50:

The draft permit attempts to identify each of the Permittee's responsibility under the permit. However, it is unclear in many situations which entity is responsible. Furthermore, it is unclear how the permit will be administered with regards to compliance issues and potential fines under an arrangement with multiple permittees. This ambiguity creates unnecessary potential confusion as to responsibility and therefore uncertain legal liabilities. Again, it is the entities' request to maintain the current administrative permit structure as per Clark County's application for permit renewal. Clark County is the only entity treating wastewater and discharging effluent to the waters of the state. If Ecology is not amenable to listing Clark County as the sole Permittee, the entities request that procedures and processes be detailed within the permit document clarifying the responsibilities of each Permittee with regards to compliance issues, legal liabilities and potential fines.

Response 50:

As discussed previously, the Department intends to hold each Permittee independently responsible for compliance with the terms of the permit applicable to their system. Clark County will continue to be held responsible for the final effluent. The City of Battle Ground and the Hazel Dell Sewer District are responsible for compliance with the conditions related to their collection systems.

Comment 51 - Page 9 - S1.A. Effluent Limitations:

Request that proper units of "MPN/100 ml" be utilized for measure of Fecal Coliform Bacteria in both tables in this section.

Response 51:

The MPN method is acceptable as it is listed in 40 CFR 136. However, this test also reports in colony forming units, therefore, no change is necessary.

Comment 52 - S1.A.2. Final Limitations:

Effluent limits for ammonia (in Phase 4) are incorrect and unnecessary. The reasonable potential analysis used to determine if the Salmon Creek Treatment Plant effluent discharge will meet or exceed the ambient water quality criteria is incorrect. Please refer to discussion provided in response to Appendix C of the Fact Sheet.

Response 52:

The Department disagrees. See above responses Numbers 9, 10, & 11.

Comment 53 - Page 12 - S2.B. Pretreatment Monitoring:

Request that the proposed quarterly monitoring with clean methods for mercury be revised to semi-annual monitoring. This revision for clean sampling for mercury would be consistent with the monitoring requirements of other local POTWs (such as the City of Vancouver's Marine Park and Westside Wastewater Treatment Facilities).

Response 53:

The semi-annual monitoring is acceptable to the Department and the permit monitoring will be changed.

Comment 54:

Request that the proposed quarterly monitoring for oil and grease be revised to annual monitoring. This revision for oil and grease would be consistent with the monitoring requirements of other local POTWs (such as the City of Vancouver's Marine Park and Westside Wastewater Treatment Facilities). Also, Hazel Dell Sewer District has a FOG management program in place, and there have been no problems with oil and grease at the POTW.

Response 54:

This change to annual monitoring for Oil and Grease is acceptable and the permit monitoring will be changed. However, because this is not an expensive test we recommend that the facility check more often if the need arises.

Comment 55:

The Permittee requests clarification of "Grab" for the proposed quarterly influent and effluent samples for phenol, cyanide, oil and grease. Is it a single grab sample or a composite of several grab samples?

Response 55:

The grab monitoring specified for all other sampling will need to be a single grab except for sludge which is a composite of four grab samples.

Comment 56:

Is quarterly "phenol" = "total phenols" (wet chem. method)?

Response 56:

Yes.

Comment 57:

Sludge Sampling Requirements: There is a quarterly sampling requirement for metals listed in the permit. There is also an annual sampling requirement for Tables II, III, and IV of 40 CFR 122 Appendix D listed in the permit. The list of metals for quarterly sampling is all contained in Table III of 40 CFR 122 Appendix D. Therefore, the annual sampling requirements for the metals in Table III appear redundant, and the Permittee requests clarification. However, Table III of 40 CFR 122 Appendix D also contains the parameters cyanide and phenols. The Permittee requests clarification that the intent is to provide annual sampling for cyanide and phenols, and for the parameters listed in Tables II and IV of 40 CFR 122 Appendix D.

Response 57:

The monitoring table is correct. To clarify: where analytes are to be sampled quarterly and also listed on an annual scan, only four samples per year for that analyte are required but the results must note that they are being submitted in fulfillment of both the annual and that quarters sampling requirement.

Comment 58:

Request that sampling of final sludge for parameters listed in Table IV of 40 CFR 122 Appendix D be changed to once per permit cycle, and then annually for any pollutants found to be present. The title of Table IV is "Conventional and Non-conventional Pollutants Required to be tested by existing Discharges If Expected to be Present".

Response 58:

The Department declines. These items shall be tested as described in the table.

Comment 59 - Page 13 - S2.C. Ground Water Monitoring for the City of Battle Ground Lagoon:

The requirement for the City of Battle Ground to monitor the groundwater for potential contamination from their lagoon, although within Ecology's regulatory authority, is not germane to federal NPDES permit requirements. The Permittee requests that this requirement be removed from the NPDES permit and addressed through a separate regulatory mechanism directly between Ecology and the City of Battle Ground.

Response 59:

The Department disagrees. See above response No. 3.

Comment 60:

There is no factual basis for the sampling parameters identified in this section, and the City of Battle Ground takes exception to the broad spectrum of sampling types for testing. Please refer to the discussion of monitoring parameters provided in the introductory portion of these comments.

Response 60:

See previous responses.

Comment 61 - Page 16 - S4.B. Plans for Maintaining Adequate Capacity:

Please reference the July 2004 *Wastewater Facilities Plan/General Sewer Plan* as fulfilling the requirements of Section S4.B under Phase 3.

Response 61:

This standard permit language will not be changed. The fact sheet discusses the basis for decisions and shows the sources. The permit shows only what is required.

Comment 62 - Page 18 - S4.E. Infiltration and Inflow Evaluation:

Please reference the July 2004 *Wastewater Facilities Plan/General Sewer Plan* as fulfilling the requirements of Section S4.E.1. The ongoing I&I assessment and reduction efforts of the Permittee is sufficient to maintain the system below thresholds that would indicate excessive I&I, and therefore additional and unnecessary I&I evaluations should not be required.

Response 62:

This language is standard for the Department's municipal permit program and will remain.

Comment 63 - Page 19 - S5.B. Operation and Maintenance (O&M) Program:

The requirement for the City of Battle Ground and the Hazel Dell Sewer District to submit an O&M manual for their collection system components is not germane to federal NPDES permit requirements. Ecology's authority to request this information is recognized, but should be addressed with a more appropriate regulatory mechanism. Please refer to the discussion in the introductory section of these comments related to City and District operations and maintenance

activities. Please define the applicability of this requirement to the City and District assets within the permit language.

Response 63:

See previous responses.

Comment 64 - Page 22 - S6.D. Industrial User Survey (applies to the City of Battle Ground):

Request that this article be deleted. Please refer to discussion of industrial wastewater pretreatment requirements provided in the introductory portion of these comments. Battle Ground performed an initial industrial user survey "sweep" of existing users in 1995. Battle Ground continues to monitor new industry and tenant improvements via their development review process. An updated industrial user survey is appropriate once per permit cycle. All current and future industrial customers have been and will be reviewed by Hazel Dell Sewer District's pretreatment program and required to apply for an NPDES wastewater discharge permit if appropriate, in accordance with Article S6.C of the draft permit.

Response 64:

See previous responses.

Comment 65 - Page 24 - S6.F. Pretreatment Report for the Hazel Dell Sewer District:

The pretreatment report for the Salmon Creek Treatment Plant is prepared by Hazel Dell Sewer District, acting as an agent for Clark County Public Works and for the City of Battle Ground (tributary to the SCTP). Please revise section heading to read "Pretreatment Report for the Salmon Creek Treatment Plant." Please revise the first sentence to read, "Clark County Department of Public Works, through its designated agent the Hazel Dell Sewer District, shall provide to the Department . . ."

Response 65:

As discussed previously, it is acceptable for the City of Battle Ground to contract with Hazel Dell Sewer District to provide this function, but the responsibility for compliance ultimately rests with the City. Therefore, the permit will remain unchanged.

Comment 66 - Page 32 - S11.Ground Water Quality Evaluation Program for Battle Ground:

The City of Battle Ground requests that this article be deleted in its entirety. Please refer to discussion of ground water quality evaluation program provided in the introductory portion of these comments.

Response 66:

See previous responses.

Comment 67 - Page 35 - G5. Plan Review Required:

This paragraph indicates that detailed plans and specifications shall be submitted prior to constructing or modifying any wastewater control facilities. WAC 173-240-030(5) allows for a

waiver of this requirement for sewer line extensions and pump stations if certain circumstances are met. Request the first sentence be revised as follows:

> "Prior to construction or modifying any wastewater control facilities, an engineering report and detailed plans and specifications shall be submitted to the Department for approval in accordance with Chapter 173-240 WAC, except as waived under WAC 173-240-030(5)."

WAC 173-240 does require that plans and specifications for the project must be submitted to and approved by the Department. However, WAC 173-240-030(3) further states that reports and plans and specifications must be submitted at least 60 days before the time approval is desired. The Permittee requests that the requirement as stated in the draft permit of 180 days be revised to 60 days, consistent with WAC requirements. The requirement to submit plans and specifications 180 days prior to construction would impede the delivery of needed system improvements and is inconsistent with the currently promulgated rule.

Response 67:

This permit requirement is a general condition and represents agency policy. Therefore, this language will not be changed in the permit. That said, a typical turnaround for review of general sewer plan, facility plan, or engineering report is approximately 60 days, often less where there has been good communication between the Department and Permittee in advance. The Department advises Permittees to communicate their schedule needs early in the process so that the Department can plan its workload and try to meet the Permittees' needs.